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ABSTRACT

This handbook is intended both as a text for use in medical office assistant (MOA) training programs in colleges and as a handbook for people working in medical offices. Addressed in the individual sections of the manual are the following topics: responsibilities of the medical office assistant, office organization, appointments and the waiting room, telephone usage, records, filing, correspondence, referrals, general practice, specialists, allied professions, the law and medicine, public health, medical-related services available to the public, hospitals, mental health, drugs, abbreviations, bookkeeping, fee schedules, billing, medical insurance, Workers' Compensation Board patients, medical emergencies, guidelines for assisting a doctor, office housekeeping, procedures for ordering supplies, disposable items, human anatomy, and medical terminology. Appended to the handbook is an MOA skill profile chart. (MN)

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Medical Office Assistants' Handbook

Developed by the
Medical Office Assistants'
Association of B.C.

U.S. DEPARTMENT OF EDUCATION
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PREFACE

The *Medical Office Assistants' Handbook* is intended both as a text for MOA training programs in colleges and as a handbook for people working in medical offices. MOAs are encouraged to fill out the information charts found throughout this handbook to make it a useful office tool.

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Vancouver Community College

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1

RESPONSIBILITIES OF THE MEDICAL OFFICE ASSISTANT

DUTIES

The medical office assistant's duties vary in each office. However, below is a list of responsibilities that all MOAs should be prepared to carry out.

Deportment

1. Wear proper office clothing.
2. Be neat and clean.
3. Be sincere, reliable, and efficient.
4. Keep office matters confidential.
5. Do not trust your memory: write notes for reminders.
6. Keep in mind that your outside conduct and behaviour might reflect on your position.
7. Refrain from social and personal affairs in the office.
8. Avoid giving medical advice.
9. Control your voice.
10. Maintain good relations with other assistants and persons in the medical field.

Patient Care

1. Handle patients with consideration and tact.
2. Remember that the patient is the reason for medical offices.

3. Always be helpful to patients.
4. Take extra care in handling nervous, very ill, disabled, or emergency patients, as well as young children.
5. Give first-aid, if necessary, including CPR, until the doctor arrives.
6. Have everything handy that the doctor may need.

Office Duties

1. Thank people personally or by mail for referring patients.
2. Consult with the doctor about problems related to your work.
3. Make appointments for the doctor.
4. Keep the waiting room comfortable and cheerful.
5. Receive patients and others coming to the office.
6. Arrange for emergency appointments as smoothly as possible.
7. Handle office emergencies efficiently.
8. Keep office traffic moving smoothly.
9. Handle telephone calls pleasantly and efficiently.
10. Arrange appointments for salesmen.
11. Be courteous to drug detail men and set up appointments.
12. Know where to reach the doctor or his substitute.
13. Assist the doctor when required.
14. Stay with the doctor and patient during certain examinations.
15. Handle equipment and drugs carefully.
16. Arrange admissions to hospitals.
17. Arrange consultations for patients.
18. Keep the office neat and clean.

19. Order medical supplies before they run out.
20. Attend to the office laundry.
21. Keep medical records in order.
22. Remind the doctor of his appointments and other obligations.
23. Order printing and office supplies well in advance.
24. Do the office bookkeeping.
25. Maintain a petty cash account.
26. See that bills for the office are looked after.
27. Make the bank deposit.
28. Keep accurate files.
29. Bill patients or their medical plans.
30. Prepare accounts for collection if necessary.
31. Keep office insurance policies current.
32. Open mail (other than personal).
33. Type the necessary letters and records efficiently and on time.
34. Send out medical reports.
35. Help the doctor with medical writings and lectures.
36. Send out important items such as death, birth, or reportable diseases certificates promptly.
37. Never leave papers or records where they can be seen by unauthorized persons.
38. Maintain office procedures and routines.

MEDICAL OFFICE ASSISTANT SKILL PROFILE

In 1979 the Medical Office Assistants' Association of B.C. approved a Skill Profile (see Appendix) listing the skills and responsibilities of an MOA in a one-girl office of a general practitioner. Students planning to take a Medical Office Assistants course offered by B.C. colleges should check how closely the course follows the Association's Skill Profile Chart.

RELEVANT COURSES AND CONTINUING EDUCATION

1. Stay up to date by reading, taking courses, and attending lectures.
2. The following courses in basic office skills are offered by the Correspondence Branch of the Ministry of Education:

   Recordkeeping 9
   Bookkeeping 11
   Office Orientation 12
   Typewriting 9 & 10
3. Try to keep current on first aid as may be required.

   The Workers' Compensation Board Industrial First Aid is taught by St. John Ambulance in most communities at various times of the year. Contact either agency for availability of the course in your area.

Note: Buyer beware! Before taking any course, inquire into content and quality suitability for employment in medical offices in this province.

COMMON MEDICAL OFFICE REFERENCE BOOKS

Medical office assistants should be familiar with and know how to use the following reference books:

Physicians' Administrative Manual: explains regulations pertaining to running a medical office and discusses some of the facilities available to doctors and patients.

Medical Services Act and Regulations: a reference for billing and for explaining to patients why certain services are not covered by prepaid schemes.

Relative Value Guide to Fees: used when billing prepaid schemes to determine the charges for all medical services except as otherwise provided under the Medical Services Act and Regulations. It is also a guide to private billing.

British Columbia Medical Journal: a monthly journal put out by the British Columbia Medical Association — one section covers new amendments to the Relative Value Guide to Fees. The journal also advises doctors on problems of medical practice.

Medical Directory: a directory for the College of Physicians and Surgeons of B.C., containing the addresses of all doctors registered in British Columbia with their specialty and location. The directory is sent to registered members each year. The *Canadian Medical Directory* must be purchased from the Canadian Medical Association, which publishes a new directory each year. Buying one every fourth year is usually adequate.

Compendium of Pharmaceuticals and Specialities: useful for spellings when writing letters and as a reference for repeat prescriptions that you know the doctor will not fill without first seeing or speaking to the patient.

Encyclopedia and Dictionary of Medicine and Nursing: explanations in lay English, making it useful for general reference. Written by Miller & Keane and published by Saunders.

Vademecum International: similar to the *Compendium of Pharmaceuticals and Specialties* but not as comprehensive.

Dorland's Illustrated Medical Dictionary: most useful of all dictionaries for terminology and spelling. Published by Saunders.

2

OFFICE ORGANIZATION

EFFICIENT ORGANIZATION

Preparation and efficient organization are the keys to a smooth-running medical office. When planning or reorganizing an office, note the following:

1. Know the floor space required.
2. Minimize your movements — three footsteps take three times as long as one footstep.
3. Allow for the patient's privacy.
4. Allow for the doctor's and staff's privacy.
5. The working room should be adequate, but should not be spread over too large an area.
6. Allow for expansion.
7. Schedule your work days as much as possible.
8. Arrange effective filing and telephone systems. Medical office assistants in a one-girl office will spend more than half of their time between patients' records and the telephone.
9. Prepare as much of the work beforehand as possible.

Note: Medical office assistants should remember that although it is important to save themselves time and effort, their greater responsibility is to save the doctor time and effort.

3

APPOINTMENTS AND THE WAITING ROOM

SCHEDULING APPOINTMENTS

Scheduling appointments in a medical office requires special care and consideration. Tact and experience with medical problems are essential.

Appointment Books: the type that allows you to scan one week and is divided into 15-minute intervals is inexpensive. Buying an appointment book is cheaper than ruling out a scribbler when the cost of your time is considered.

Patients' Telephone Numbers: noting patients' telephone numbers beside their names in the appointment book will save you hours of frustration when you have to change appointments. Ask the patients for their telephone numbers when making appointments because the ones on their charts may not be up to date.

Try Not to Overbook: healthy people can get impatient if they have to wait, and ill people can become even more so. If the doctor is delayed, tell patients, and suggest that they go out for coffee or take their children for a walk.

Avoid Booking Friends, Relatives, or Neighbors Close Together (unless it is specifically requested): the doctor's office is one place where most people expect privacy.

DEALING WITH PATIENTS IN THE WAITING ROOM

If patients are unhappy because of delay or because of other patients' behaviour, they will probably waste the doctor's time complaining about it. Such complaints can build up with each patient resulting in several hours delay by the end of the day. The MOA can do much to improve the situation:

1. Initiate a cheerful conversation among the patients. Humor the grouch in a nice way: remember it only takes one person to upset the whole waiting room.
2. Tactfully control annoying habits of the patients, e.g. cigar and pipe smoking (if smoking is allowed in the waiting room).
3. Provide pencils and paper for small children whose parents cannot take them for a walk.
4. If patients are obnoxious because of too much alcohol, politely but firmly direct them to the nearest cafe for coffee.
5. NEVER try to handle on your own an unruly mentally ill or addicted patient.
6. If possible, postpone some appointments until a lighter day if the delay becomes excessive.
7. Explain that the doctor has been delayed by an emergency at the hospital or by a house call exaggerating if necessary. Given this explanation, most patients will find waiting more tolerable and sympathize with the doctor's workload. Being aware that the doctor is very busy, they are more likely to keep their visit short.

Note: The waiting room is the responsibility of the MOA.

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TELEPHONE

TELEPHONE PROCEDURES

Medical office assistants spend much of their time on the telephone. Observe the following when handling telephone calls:

1. A pleasant and controlled voice is mandatory when speaking to sick patients.
2. Never speak on the telephone with anything in your mouth. The telephone magnifies speech defects, and you should be clearly understood.
3. Keep a pad and pencil beside each telephone at all times.
4. Write down messages at once; do not rely on your memory.
5. Never place a call on hold without first knowing the source of the call. For example the call could be:
    a) an emergency
    b) a doctor
    c) someone calling long distance who would prefer to keep the cost of the call down.
6. There are many answering service and paging systems. B.C. Tel can advise you of the best system for your needs.
7. Psychological emergencies — Section 24.
8. Keep a current alphabetical list of frequently called numbers and emergency numbers (see over).

Emergency Telephone No.'s

Emergency Directory	Telephone No.
Ambulance	
Police	
Fire	
Hospital (Poison Control)	

5

RECORDS

RECORD REGULATIONS

The following paragraph on records is taken from the *Medical Act Regulations, Regulation 11, Part IV Practitioners' Records:*

"Members in private practice shall keep clinical records on every patient giving the name and address, the dates seen, and adequate patient's history and particulars of physical examination, the diagnosis made (if any) and the treatment prescribed. An account card or ledger page or section shall be kept with respect to each patient or the person upon whom the patient is dependent which shall show the date of service rendered, the type of service, charge made, payments made and the balance outstanding. A day book or a daily diary shall also be kept showing for each day the names of the patients seen or treated or in respect of whom some professional service is rendered. Such records, accounts, books or diaries shall be typed or legibly written and kept in suitable systematic permanent forms such as cards or folders and retained for a period of not less than 6 years from the date of the last entry recorded. Doctors attending a patient at a hospital shall promptly complete the medical records for which they are responsible."

RECORD FORMS

The MOA should record the following information for each patient:

1. Surname must be the same as on the medical insurance identity card with cross references for foster or step-children.

2. Given names must agree with initials on the medical insurance identity card.
3. Home address and telephone numbers.
4. Business name, address, and telephone number.

Note: *Unlisted telephone numbers should be noted as such and handled with discretion.*

5. Birth date (more accurate than age).
6. Next of kin. If they are not local residents, the name of a local friend or relative should also be noted.
7. Medical identity number. Preferably taken from the medical insurance identity card to reduce the margin of error in transcribing.
8. Name of person responsible for payment.
9. Marital status.

HANDLING RECORDS

Note: *Patient records are the property of the doctor. Patients or others have no right to look at any part of the records unless the doctor so desires or is directed by courts of law.*

You should not leave the record alone with the patient or where others might see it. Medical records are private and confidential. No information is to be released unless properly authorized. This requires written consent by the patient or guardian. Those who inquire about their relative, friend, or employee must be politely told that such information cannot be given out without the patient's consent. In fact, you should neither deny nor acknowledge that a patient comes to your office. The only exception is if a patient's health is being jeopardized, and even in this case be as cautious as possible.

RECORD FILES

You can streamline your medical records without changing your filing system and upsetting office routine if patients' records are contained in the standard letter-size folder. Hoffmann-LaRoche have produced a heavy-duty file folder (standard letter size) that saves time and space and merges with the existing system. The advantages of the Hoffmann-LaRoche file folders are:

1. Patient information, summary, laboratory results, etc., are noted on the inside of the folder. Also the folders require:
    a) less paper in the chart, thus taking less space in the file cabinet
    b) less time for the doctor to review the chart
2. The outside of the folder is dated numerically. For example the MOA strokes through "9" if the patient received service in 1979, and she can then quickly see if the chart is current or old. This helps eliminate crowded current files in a busy office.
3. The folders are color coded. This can be used:
    a) for doctor identification in two-or-more-doctor offices
    b) to identify specific conditions
    c) for filing purposes — alphabetical or numerical color coding.
4. The folders can be easily incorporated into any existing filing system that has standard letter-size files (either side or drawer files). For example, you can change the folder when the chart is pulled for normal use, and transfer as much information as time will allow.

6

FILING

FILING SYSTEMS

All records should be kept in a neat, systematic manner. This is called filing. A short course on filing techniques is useful as the variety of systems can be confusing and misleading. A filing system is only as efficient as the person handling it. Lost files or reports waste time and cause the doctor and the patient great inconvenience.

The most practical system for doctors' offices is alphabetical color coding. The alphabetical system is the most efficient way of filing in the average medical office. Color coding reduces the chance of misfiling.

The numerical system suits large clinics and hospitals, where many names are duplicated. In the average office, however, it can double the MOA's work and cause frustration.

Do not allow a high-pressure salesman to push a complicated system into the office. You are the one who will be working with it.

Alphabetical Filing

Advantages	Disadvantages
1. Provides for grouping of papers pertaining to an individual or a company.	1. Congestion under common names.
2. Direct filing and reference.	

3. Simplicity of guide and folder arrangement.
4. Provides for miscellaneous papers.

2. Possibility of filing related papers in more than one place because of variations in spelling of surnames and company names.

Numerical Filing

Advantages

1. Accuracy.
2. Positive numbers that may be used to identify the name or subject when calling for material.
3. Unlimited expansion.
4. Opportunity for permanent and liberal cross referencing.

Disadvantages

1. Indirect filing and reference.
2. Separate files must be maintained for miscellaneous papers.
3. Cumbersome index.
4. High labor cost.

Geographical Filing

Advantages

1. Provides for grouping of papers by location.
2. Direct filing and reference.
3. Provides for miscellaneous papers.

Disadvantages

1. Sorting by territorial divisions and then by alphabetical order increases the possibility of error and raises labor costs.
2. Location as well as name must be known.
3. Need for occasional reference to card index.

Subject Filing

Advantages	Disadvantages
1. Provides for grouping of papers by topics, to establish relationships of a statistical nature.	1. Difficulty in classifying papers for filing.
2. Unlimited expansion.	2. Need for liberal cross referencing.
	3. Unsatisfactory provision for miscellaneous papers.
	4. Need for occasional reference to index to determine subject heading of subdivision.

ATTENTION TO FILING PROCEDURES

There are more misplaced papers in small offices, in proportion to the volume handled, than in larger organizations. In many small offices the search for papers resembles a constant treasure hunt that starts with the files and then branches out into the desk trays and drawers. This happens because mail is not filed after being attended to or because filed material is not returned promptly after being drawn. It is a mistake in any office — large or small — to postpone regular filing papers because only a few have to be put away. Make a habit of immediately putting all papers into the files, where they are safe and the information they supply is readily available.

7

CORRESPONDENCE

LETTER PROCEDURES AND FORMATS

Letter formats vary from office to office, but certain general procedures ensure accurate medical records for each patient:

1. Answer letters promptly.
2. Identify the patient on each page of the letter, i.e., each page should have the doctor's name, the patient's name, and the date.
3. Each patient should have a separate letter.
4. A carbon copy of all reports should be kept with the patient's record.
5. Develop a short, three-sentence *"To Whom It May Concern"* letter format to save time when asked to write a time-loss or physical fitness letter.
6. A brush-up secretarial course will provide the MOA with the latest letter-writing techniques.

8

REFERRALS

MAKING REFERRALS

A referral may be for an opinion only (consultation), opinion and continuing care, treatment only, or for diagnostic procedures. The reason for referral should always be stated on the request.

Note: A proper referral is made at the request of the referring doctor, not the patient.

The following quotation regarding consultations is taken from the *Relative Value Guide to Fees:*

"Consultation: This is defined as a request by a doctor for a second opinion on a case that he has examined and with which he has encountered some difficulty. It includes the initial services of a consultant and additional visits necessary to enable him to prepare and render his report, when the case is returned to the referring doctor. Subsequent consultations may be sought by the original doctor from the same or other consultants. No consultation should be charged to the patient or his payment agency unless it was requested by the attending doctor."

Much time is wasted in communication between the offices of the general practitioner and the specialist because of incomplete information. Before picking up the telephone to request a consultation, you should have the following information:

1. Full name of patient.

2. Patient's telephone number.
3. Type of examination requested.
4. Patient's medical identity number.
5. Convenient dates and time if possible.
6. Various specialists require specific information. Refer to the individual specialist in Section 10.

REFERRAL LETTER

The considerate referring doctor is one who always sends a letter or note outlining the patient's problem, therapy, and any laboratory or X-ray results when requesting a consultation. This gives the consultant the relevant information before seeing the patient. Also the consultant knows the patient is a proper referral, and the MOA will record this on the billing card.

Note: *A good system for such a letter is to have a referral form or prescription pad at hand that the doctor can fill out like a prescription. The MOA can then arrange the appointment and send information to the consultant either by mail or with the patient.*

9

GENERAL PRACTICE

GENERAL PRACTITIONERS

A general practitioner is a physician not limited to a specialty who practices both medicine and surgery in providing continuing and comprehensive care for the whole family.

The general practitioner should coordinate patients' overall health care to protect them from unnecessary duplication of treatment and therapy as well as from adverse reactions to drugs and other treatment.

Keep a list of other general practitoners who are accepting new patients in case your office cannot accept them.

Note office hours of substitute doctors who take calls in your absence.

Doctor's Name	Tel. No.	Address and Office Hours

10

SPECIALISTS

AREAS OF MEDICAL SPECIALIZATION

This section on areas of medical specialization gives MOAs a general idea of the why and how of making proper referrals. Duplication of services and unnecessary repeat visits can be eliminated with a little forethought.

Some specialists have specific instructions that enable them to handle patients more efficiently. They should make these instructions known to the offices of referring doctors.

For each area of specialization a chart is provided to list the specialists to whom your office makes referrals.

Allergy (Internal Medicine)

The study of hypersensitivity disorders, considering the immunologic, bacterial, pathologic, physiologic, and pharmacologic aspects of the disorders; and the diagnosis and treatment of the disorders.

Specific information required:

1. Extensive background of previous illnesses and treatments.
2. Related familial problems.

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Anesthesiology

Anesthesia and anesthetics: loss of feeling or sensation.

Specific information required:

1. Medical identity number.

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Cardiology (Internal Medicine)

The structure, functions, diseases, and treatments of the heart.

Specific information required:

1. Previous ECGs.
2. Relevant past investigations and medications.

Specialist	
Tel. No.	
Address	
MSP No.	
Office Hours and Special Instructions	
Specialist	
Tel. No.	
Address	
MSP No.	
Office Hours and Special Instructions	
Specialist	
Tel. No.	
Address	
MSP No.	
Office Hours and Special Instructions	

Dermatology

The structure, functions, diseases, and treatments of the skin.

Specific information required:

1. Reason for visit.
2. Past and present treatments and medications.
3. Relevant laboratory tests.

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Endocrinology (Internal Medicine)

The science of the functional glands and internal secretions of the body.

Specific information required:

1. Extensive background of previous illnesses and treatments.
2. Related familial problems.

Specialist

Tel. No.

Address

MSP No.

Office Hours and
Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and
Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and
Special Instructions

Gastroenterology (Internal Medicine)

The structures, functions, diseases, and treatments of the stomach and intestines.

Specific information required:

1. Previous internal X-ray films.
2. Past history and medications.

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

General Surgery

Treatments of diseases, deformities, defects, and injuries by manual or instrumental means.

Specific information required:

1. Reason for referral.
2. Any relevant laboratory or X-ray results.
3. General knowledge of the patient's health.

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Gynecology

The structure, functions, diseases, and treatments of the female genital tract.

Specific information required:

1. Reason for referral.
2. Past relevant history and therapy.
3. Patient's age.

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Internal Medicine

The structures, functions, diseases, and treatments of the internal organs (diagnostician).

Specific information required:

1. Past history and all laboratory test results.
2. All previous doctors reports and treatments.

Specialist

Tel. No.

Address

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Address

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Neurology

The structure, functions, diseases, and treatments of the nervous system.

Specific information required:

1. Reason for referral.
2. Past relevant history and therapy.
3. Previous back and skull X-rays.
4. Previous EEG reports.

Specialist

Tel. No.

Address

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Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Neurosurgery

The structures, diseases, and surgical treatments of the brain and nervous system.

Specific information required:

1. Reason for referral.
2. All back and skull X-rays.
3. Past relevant history and treatments.

Specialist

Tel. No.

Address

MSP No.

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Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Obstetrics

Treatments of women during pregnancy, parturition (delivery), and postnatal care.

Specific information required:

1. Problems of previous pregnancies.
2. Relevant history and laboratory tests.
3. Past X-rays of pelvic area.
4. Patient's age.
5. Completion of the relevant sections of prenatal forms.

Specialist
Tel. No.
Address
MSP No.
Office Hours and Special Instructions

Specialist
Tel. No.
Address
MSP No.
Office Hours and Special Instructions

Specialist
Tel. No.
Address
MSP No.
Office Hours and Special Instructions

Ophthalmology

The structure, functions, diseases, and treatments of the eyes.

Specific information required:

1. Reason for referral:

   Emergency — redness of eye with reduced vision
   — eye pain with reduced vision
   — sudden onset of double vision
   — sudden injury

   Non-emergency — headaches and other long-standing complaints

   Refraction — visual acuity

2. History of treatment and examination.

Advise patients:

1. Of the time involved and of the possibility that they may have drops instilled in their eyes.

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Office Hours and Special Instructions

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Office Hours and Special Instructions

Orthopedics

The structure, functions, deformities, diseases, and treatments of the musculoskeletal system.

Specific information required:

1. Reason for referral.
2. All relevant X-rays.
3. Patient's age.
4. Third party, Workers' Compensation Board, or private responsibility.

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Office Hours and Special Instructions

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Otolarynology

The structures, diseases, and treatments of the ears, nose, and throat.

Specific information required:

1. Reason for referral.
2. All relevant X-rays.

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Office Hours and Special Instructions

Specialist

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Office Hours and Special Instructions

Pathology (Laboratories)

The field of disease processes.

Specific information required:

1. Medical identity number.
2. Specify each test required.

Advise patients:

1. Of the time required for testing. Glucose tolerance takes at least three hours.
2. If diet or fasting is required. Fasting means no eating, drinking, smoking, or gum chewing for twelve hours before a test.

Note: *If fasting is contra-indicated by a patient's health, check with the laboratory for special instructions.*

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Specialist

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MSP No.

Office Hours and Special Instructions

Pediatrics

The development, care, hygiene, diseases, and treatments of children usually 16 years of age and under.

Specific information required:

1. Relevant patient and family history.
2. When an obstetrician is a consultant, the family doctor must refer a newborn baby.
3. When an obstetrician is the family doctor, then the referral may come from the obstetrician.

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MSP No.

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Physical Medicine

The employment of physical means in the diagnosis and treatment of diseases using heat, cold, water, electricity, light, manipulation, massage, exercises, and mechanical devices. The assessment of disability and residual ability with reference to maximum rehabilitation.

Specific information required:

1. Relevant patient and family history.
2. Relevant X-rays.

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Address

MSP No.

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Plastic Surgery

The surgical change or correction of congenital anomalies, post-neoplastic abnormalities, post-traumatic abnormalities, as well as surgical changes for cosmetic effect.

Specific information required:

1. Relevant patient and family history.
2. Relevant X-rays.
3. Page 25 of the *British Columbia Services Plan — Guide to the Submission of Physicians' Accounts* should be consulted and the patient advised of possible charges related to cosmetic surgery.

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Office Hours and Special Instructions

Specialist
Tel. No.
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MSP No.
Office Hours and Special Instructions

Specialist
Tel. No.
Address
MSP No.
Office Hours and Special Instructions

Psychiatry

The diagnoses and treatments of diseases and disorders of the mind.

Specific information required:

1. Relevant patient and family history.
2. Contact the psychiatrist's office for the latest instructions for proper referral and continuing care referrals.

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Specialist

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Address

MSP No.

Office Hours and Special Instructions

Public Health

Preventive and protective medical practice.

Specific information required:

See Section 13.

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Specialist

Tel. No.

Address

MSP No.

Office Hours and Special Instructions

Radiology

The diagnoses and treatments of diseases using radiant energy and substances.

Specific information required:

1. Use the requisition form from the radiologist or hospital and fill in information requested.
2. Check with the radiologist's office if the patient is pregnant, diabetic, epileptic, allergic, has a metal prosthesis, has a colostomy, or has any other problems that would affect internal X-rays.
3. Any previous relevant X-rays.
4. Internal X-rays must be booked in advance.

Advise patients:

1. To prepare properly. Go over instructions and have patients explain them to ensure that they understand.
2. To allow enough time. Patients cannot leave in the middle of an internal X-ray because they are overparked or have another appointment.
3. That the public health nurse will give cleansing enemas to anyone having difficulties. The enema must be requested by the doctor, not the patient.
4. To bring an interpreter with them if they are not fluent in English.

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Address

MSP No.

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Urology

The structure, functions, diseases, and treatments of the genitourinary system.

Specific information required:

1. Reason for referral.
2. Relevant X-rays.
3. Relevant laboratory tests.

Specialist

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Address

MSP No.

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Specialist

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ALLIED PROFESSIONS

PROFESSIONALS ALLIED WITH MEDICINE

Referrals to the allied professions are generally for treatment only; rarely would they be for consultation in the formal sense. The payment agencies will make payments to some of the allied professions on the basis of referrals from physicians.

Dentist and Oral Surgeon: look after some diseases and growths of the mouth. Oral surgery performed in hospitals is covered by prepaid plans when referred by a general practitioner.

Veterinarian: assists with diseases communicated from animals to people and researches or experiments with medicine on animals.

Dietician: helps the patient on special diets and teaches the cook(s) in the family how to prepare interesting meals within the limitations of the specialized diet.

Nutritionist: helps the patient plan well-balanced meals within their income or means.

Pharmacist: aids doctors with knowledge of drugs, and prepares and supplies medications prescribed by doctors.

Physiotherapist: aids doctors in the treatment of diseases or disorders through the use of massage, exercise, heat, water.

Occupational Therapist: assists in rehabilitating patients or in teaching patients hobbies or trades within the limits of their handicap.

Orthopist: treats visual habits, defects, and motility by training patients in eye movement and exercises.

Psychologist: tests and treats emotional and mental processes and behaviour.

Speech Therapist: works with patients handicapped by speech problems such as aphasia and stuttering.

Medical Office Assistant: is, depending on the office, a receptionist, bookkeeper, clinical assistant, secretary, or a combination thereof.

Nurses: are either registered, graduate, or practical according to their accreditation, education, licence, and registration. Their duties and responsibilities vary depending on their qualifications, experience, and place of employment.

Dental Assistant: aids dentists and dental hygienists at the chair and looks after general office procedures.

Dental Hygienist: is licensed to do specific intra-oral procedures and can assist dentists at the chair.

Laboratory Technician: aids doctors by preparing and analyzing specimens.

X-Ray Technician: assists the radiologist by taking and developing X-rays.

12

MEDICO-LEGAL—THE LAW AND MEDICINE

LAWS RELATING TO MEDICAL PRACTICE

The following paragraph on the law and medicine in British Columbia is taken from the *Physicians' Administrative Manual.*

"The practising physician comes into contact with various situations which are regulated by the laws of his Province and of the municipality in which he is practising. It is interesting to note that in this Province there are some twenty-six Statutes relevant to the Practice of Medicine, in addition to certain sections in the Criminal Code."

The Opium and Narcotic Drug Act

From the *Physicians' Administrative Manual:*

"Physicians are required to keep records of narcotic and controlled drugs dispensed under an amendment to this act in 1966 and must furnish information on request."

Public Health

See Section 13.

Motor Vehicle Act

Refer to the government booklet *Guide for Physicians in Determining Fitness to Drive a Motor-vehicle.*

Criminal Code

Narcotics, child abuse, and other acts of violence are covered under the Criminal Code and must be handled through the proper channels.

Medico-Legal Fees

The patient does not always clearly understand the responsibility for payment of medico-legal accounts. Many assume payment will be the lawyer's responsibility after a court settlement has been awarded. Patients should be made aware, preferrably in writing, that they are personally responsible for payment of the medico-legal account.

In exceptional cases, a lawyer or insurance company may request information through the consent of the patient. Under these circumstances there should be a written undertaking from them, that they are responsible for payment of the account.

Medical examinations and treatment in respect of an illness or injury are in addition to the medico-legal fees. The accounts for these services are billed to the licensed carrier if the patient has medical coverage. If the MOA is aware that a third party is involved, this information should be indicated on the account.

Note: No information on a patient should be released without his or her prior written consent.

Statute of Limitations

Because of the complexities and variations in interpretation of this act, it is recommended that no records or documents be destroyed without written permission from the appropriate agency.

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PUBLIC HEALTH

PUBLIC HEALTH SERVICES

Public health services are available to physicians through provincial health units administered by the Ministry of Health and the metropolitan departments of health of Greater Victoria and Vancouver.

Communicable Diseases

Contact your local Public Health Department for current regulations and services.

Penicillin: available free to children who have or have had rheumatic fever and to patients with venereal disease.

Immune Globulins (human): available free to members of a household in contact with infectious hepatitis. For others in contact with the disease inquire at your local Public Health Department. Those in contact with other diseases such as rubella should also call the local Public Health Department.

Immunization Procedure for International Travel

Contact your local Public Health Department for current regulations and services.

Non-Communicable Diseases

Contact your local Public Health Department for current regulations and services.

Family Health Care

Contact your local Public Health Department for current regulations and services.

Maternity, Infant, Pre-School Services

Contact your local Public Health Department for current regulations and services.

Home Care Nursing Services

Home nursing and rehabilitation care are available on the request of a physician throughout most of the province. This includes the services of public health nurses, in some areas consultant physiotherapists for assessment and instruction, and homemaker services. Arrangements can usually be made by public health nurses for provision of other paramedical services when required. Particulars regarding the services available may be obtained from your local Public Health Department.

Public Health Nursing Services (General)

Public health nurses provide services to all age groups, either during home visits or at the health unit. These services include counselling related to specific health problems, to nutrition, safety, emotional needs, general health care, community resources, and to many other health-related concerns. The public health nurse is familiar with many families in her district and is available to discuss specific problems with the physician and to provide additional services in special situations when requested by the physician.

Rehabilitation Services for Disabled Persons

Contact your local Public Health Department for current regulations and services.

Deaths and Stillbirths

Contact your local Public Health Department for current regulations and services.

Section 9(1) of the *Coroners Act* provides that:

"Every legally qualified medical practitioner who was last in attendance during the last illness or on the death of any person who dies from other than natural causes shall, within twenty-four hours after having notice or knowledge of the death of such person, notify in writing the Coroner within whose jurisdiction the death occurs that such person has died from other than natural causes."

Radiation Protection Service

Contact your local Public Health Department for current regulations and services.

Radiation surveys and inspections are carried out on all radiation-emitting devices in the province.

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MEDICAL-RELATED SERVICES AVAILABLE TO THE PUBLIC

MEDICAL-RELATED SERVICE ORGANIZATIONS AND FACILITIES

There are many facilities throughout the province that assist patients and their families. The various children's health services and travelling clinics guarantee that no child will lack adequate medical attention due to a family's poor financial situation. A few of the services available for the handicapped, elderly, and convalescent are listed here. Contact your local public health unit for other services in your locality and obtain a directory.

Volunteer Drivers

Many communities have organizations that sponsor voluntary drivers. While the Welfare Department will cover necessary transportation for their patients, there are many patients without means who lack adequate medical attention for convalescent or long-term follow-up care. Volunteer drivers can help these people. Remember, however, that the drivers are giving up their free time, and the MOAs should arrange that the patient sees the doctor as quickly as possible so that the driver does not have to wait more than is necessary.

A. Maxwell Evans Clinic (cancer detection and treatment)

1. Cytology service.
2. Special hospital beds available.

3. Special treatment services available.
4. The disease is reportable.

Canadian Arthritis and Rheumatism Society (CARS)

1. Provides treatment for all forms of arthritis.
2. Services available throughout the province.

G.F. Strong Rehabilitation

1. Rehabilitation centre.
2. Situated in Vancouver but open to patients throughout the province.

Canadian National Institute for the Blind (CNIB)

1. Facilities for looking after all legally blind and temporarily blind patients.
2. Jericho Hill School for deaf and blind children.

Ministry of Health Long-Term Care Programs

Home Care and Homemaker Services

1. Available in most areas of the province.
2. Assist patients in the home for convalescent, long-term chronic conditions, and other special medical and homemaking needs.

Red Cross

1. Blood transfusion service.
2. Rental of sick room supplies.

Police

1. The police in your area will assist you in contacting patients in emergency or near-emergency circumstances when your own resources are inadequate.

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HOSPITALS

HOSPITAL POLICIES

As each hospital has its own admitting and operating-room booking procedures, the MOA should become familiar with the regulations of any hospital the doctor attends. Goodwill is a necessity between the medical office and hospital staff to ensure maximum cooperation when admitting patients. See to admissions by telephone or by personal contact with the section or facility of the hospital to which the patient is being admitted. The following are different hospital facilities (although in some hospitals some facilities are conbined): acute, chronic, convalescent, activation, psychiatric.

List on the chart provided the hospitals that the doctor attends.

Hospital

Tel. No.

Dept.

Local

Special Instructions

Hospital

Tel. No.

Dept.

Local

Special Instructions

Hospital

Tel. No.

Dept.

Local

Special Instructions

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MENTAL HEALTH

MENTAL HEALTH CENTRE SERVICES

Mental Health Centres have been established in many British Columbia communities. Each centre develops — in cooperation with existing resources within the community — services designed to meet the specific mental health requirements of the area served.

A centre is staffed by a team of mental health experts that may include a psychiatrist, a psychologist, psychiatric social workers, mental health nurses, and other professional personnel.

Most Mental Health Centres provide, in varying degrees, the following services:

1. Direct treatment services for adults and children.
2. Consultative services to physicians and to health, welfare, educational, and correctional agencies.
3. Educational programs, both professional and non-professional.
4. Special programs, such as the supervision of long-term patients, preventative programs, home-boarding care and group home programs.

Please note the admission procedures of the centre in your locality (see over).

Mental Health Centre

Telephone:

Address:

Admission Procedures:

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DRUGS

MEDICAL PRESCRIPTIONS

Only doctors can prescribe medications. MOAs do not have the authority to give prescriptions. The information in this section on drugs and the ways of taking them will be helpful when following doctors' instructions regarding prescriptions.

Note: All prescriptions and repeat prescriptions of narcotics and controlled drugs must be entered each time on the patient's record.

ROUTES OF MEDICATION

Oral: by mouth

Sublingual: under the tongue

Intranasal: by the nostrils

Inhalation: breathing in through the nose or mouth

Intracutaneous: by scratching the skin

Subcutaneous: under the skin

Intramuscular: into the muscle

Intravenous: into the vein

Intracardiac: into the heart

Rectal: by the rectum

Vaginal: by the vagina

Topical: on the surface of the skin

COMMON MEDICAL OFFICE DRUG CLASSIFICATIONS

Analgesics: decrease pain, e.g. aspirin, demerol, codeine, darvon.

Antacids: neutralize stomach acidity, e.g. milk of magnesia, sodium bicarbonate, aluminum hydroxide.

Antibiotics: combat infections, e.g. penicillin, achromycin, panalba.

Antiemetics: relieve nausea and vomiting, e.g. gravol, stelazine.

Antihistamines: treat allergies, e.g. chlor-trimeton, benadryl.

Antipyretics: lower fever, e.g. aspirin, tylenol, acetaminophen.

Antiseptics: prevent bacterial growth, e.g. alcohol, iodine, merthiolate, mercurochrome.

Antispasmodics: relax smooth muscle spasm, e.g. belladonna, donnatal

Biologicals: used for immunity, e.g. smallpox vaccine, polio vaccine, tetanus anti-toxin, influenza vaccine.

Cardiac Stimulants: treat heart conditions, e.g. digitalis, caffeine.

Diuretics: increase urinary output, e.g. diuril, naqua.

Hematinics: build blood, e.g. iron, folic acid, Vitamin B-12.

Hormones: used for glandular therapy, e.g. thyroid, insulin, adrenalin, estrogen.

Hypnotics: produce sleep, e.g. phenobarbital, nembutal, seconal.

Laxatives (Cathartics): aid in bowel evacuation, e.g. milk of magnesia, castor oil, mineral oil.

Narcotics: reduce pain, e.g. morphine, opium, codeine.

Nerve Sedatives: quiet nerves, e.g. phenobarbital, bromides.

Nerve Stimulants: stimulate nerves, e.g. desoxyephedrine, ritalin.

Respiratory Stimulants: stimulate breathing, e.g. metrazol, lobeline, aromatic spirits of ammonia.

Steroids: used for allergies and inflammations, e.g. cortisone.

Tranquilizers: decrease tension and anxiety, e.g. miltown, compazine.

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ABBREVIATIONS

ABBREVIATIONS USED BY MOAs

i	one
ii	two
iii	three
iv	four
ix	nine
%	per cent
>	greater than
<	less than
+	plus
−	minus
±	indefinite
♂	male
♀	female
a.a.	of each
a.c.	before meals
a.d.	to, up to
ad.lib.	at pleasure
alb.	white

Abbreviations

ante	before
aq.	water
A.S.H.D.	arteriosclerotic heart disease
b.i.d.	twice daily
B.M.	bowel movement
B.M.R.	basal metabolism rate
B.P.	blood pressure
c̄	(cum) with
C	centigrade
Ca.	carcinoma
cc	cubic centimetre
C.H.F.	congestive heat failure
cm	centimetre
C.N.S.	central nervous system
C.O.L.D.	chronic obstructive lung disease
CPR	cardiopulmonary resuscitation
c/o	complaining of, in care of
C.V.	cardiovascular
C.V.A.	cardiovascular accident
D & C	dilatation and curettage
dil.	dilute
div.	divide
D.O.A.	dead on arrival
dr.	dram
Dx	diagnosis

E.C.G.	electrocardiogram
E.K.G.	electrocardiogram
E.E.G.	electroencephalogram
E.E.N.T.	eye, ear, nose, and throat
E.N.T.	ear, nose, and throat
F	fahrenheit
fl.	fluid
G.B.	gall bladder
G.I.	gastro-intestinal
gm	gram
gr.	grain
gtt	drops
G.U.	genito-urinary
hb., Hgb.	hemoglobin
h.s.	at bedtime
Hx	history
i.c.	between meals
I & D	incision and drainage
I.V.	intravenous
kg	kilogram
K.U.B.	kidney, ureter, bladder
lb.	pound
liq.	liquid
L.L.Q.	left lower quadrant
L.U.Q.	left upper quadrant

L.M.P.	last menstrual period
L.N.M.P.	last normal menstrual period
mg	milligram
M.I.	myocardial infarction
ml	millilitre
mm	millimetre
N	normal
neg.	negative
ne rep.	do not repeat
non rep	do not repeat
no	number
N.P.O.	nothing by mouth
N.Y.D.	not yet diagnosed
O.B.	obstetrics
O.D.	right eye
o.h.	every hour
o.m.h.	every hour
O.P.D.	Outpatient Department
opt	best
O.S.	left eye
O.U.	both eyes
oz.	ounce
P	pulse
p.c.	after meals
p.o.	by mouth

p.r.n.	as necessary
Px	physical examination
q.h.	every hour
q.2 h	every two hours
q.i.d.	four times daily
q.s.	sufficient quantity
R.B.C.	red blood cells
rep	repeat
Resp	respiration
R.L.Q.	right lower quadrant
R.U.Q	right upper quadrant
Rx	prescription, treatment
$\bar{s}$	(sans) without
S.T.D.	sexually transmitted disease
s. sig.	sign, label
S.G.	specific gravity
S.O.B.	short of breath
ss, $\overline{ss}$	one half
stat	at once
T., temp	temperature
t.i.d.	three times daily
ung	ointment
U.R.I.	upper respiratory infection
V.D.	venereal disease
W.B.C.	white blood cells

Using abbreviations economizes time and space. There are many abbreviations used in the medical field. This list summarizes those used most often in a medical office. If others are used in your office, please add them to the list for ready reference.

Other Abbreviations

19

BOOKKEEPING

BOOKKEEPING SYSTEMS FOR MEDICAL OFFICES

Contact the College of Physicians and Surgeons and the Medical Services Plan for expert advice when setting up a medical bookkeeping system. Many offices have inefficient systems because of friendly, inexpensive, medically inexperienced advice.

General Accounting and Office Procedures

1. Keep a duplicated bank deposit book.
2. Use a prenumbered cheque book with cheque stubs that allow for full information, i.e. who the cheque is to, the amount, and what the cheque is for.
3. Keep a duplicate receipt book.
4. Keep a petty cash book for such small amounts as postage, cleaning aids for the office, etc. The main reason for paying for stamps out of petty cash is that you have to make a trip to the bank to have the cheque certified before the post office will accept it.
5. Keep individual payroll records on a yearly basis. The B.C. Labour Act requires a timesheet for each employee.
6. Income Tax, Canada Pension Plan, and Unemployment Insurance must be deducted from employees' salaries and remitted monthly. Details are available from your local income tax office.

7. A receipt must be given for all moneys received.
8. All records must be kept in a suitable systematic order for a period of six years from the date of the last entry. See also the note below.
9. A daily log must be kept for all services rendered and charges made.
10. Office accounts (Accounts Payable) and patients accounts (Accounts Receivable) should be kept separately.

Note: No records of accounts may be destroyed without permission of the Income Tax Department.

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FEE SCHEDULE

RELATIVE VALUE GUIDE TO FEES

To properly understand and use the *Relative Value Guide to Fees,* the MOA should study the preamble to the schedule thoroughly and then review it every six months. Amendments and clarifications are published in the *B.C. Medical Journal* and should be noted in the schedule.

For easy reference on how to use the schedule for your office's services, list your services and alongside give the procedures for using the schedule, the schedule No. and the fee.

Using the Relative Value Guide to Fees

Service	Procedure and Schedule No.	Fee

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BILLING

TYPES OF ACCOUNTS

Medical Services Plan of B.C.

See Section 22.

Private Insurance Companies

The standard insurance form should be used for submissions to private insurance companies.

Workers' Compensation Board

See Section 23.

Private Accounts

1. Send the first statement as soon as possible after the service is rendered, while the patient is still grateful and hopefully still at the address given.
2. Reminders should be sent on a monthly basis unless otherwise indicated.
3. Where the patient has not given the correct medical identity number, the account should be handled as a private account and is the patient's personal responsibility.
4. Use collection agencies with tact and forethought.

Medico-Legal

See Section 12.

Out-of-Province Medical Plans

1. Treat as private accounts and give the patient a completed standard account card with the receipt so it can be submitted to the patient's plan for reimbursement.
2. Exceptions should be made for medical plans with which the doctor has an arrangement.

Agency Medical Plans

Patients claiming coverage of their accounts by other agencies must have this verified in writing by the agency.

Billing Government Institutions

MOAs should become familiar with the forms used for accounts sent directly to government institutions such as:

Insurance Corporation of B.C.
Unemployment Insurance Canada
Department of Indian Affairs
Department of Veterans Affairs

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MEDICAL INSURANCE

MEDICAL SERVICES PLAN OF BRITISH COLUMBIA

An extract from the *Guide to the Submission of Physicians' Accounts for Insured Services,* published by the Ministry of Health for the B.C. Medical Services Plan, is included in this section.

Province of British Columbia
Ministry of Health
MEDICAL SERVICES PLAN

GUIDE TO THE SUBMISSION OF PHYSICIANS' ACCOUNTS FOR INSURED SERVICES

P.O. Box 1600
Victoria, B.C.
V8W 2X9
Telephone: 386-3166
Vancouver: 669-4211
B.C.: 112-381-2141 (Toll Free to Registration Dept.)
Radiophone: Zenith 8885 (Toll Free to Registration Dept.)

Medical Services Commission — April 1, 1980

MEDICAL SERVICES PLAN OF BRITISH COLUMBIA— GUIDE TO THE SUBMISSION OF PHYSICIANS'ACCOUNTS FOR INSURED SERVICES

IMPORTANT THINGS TO REMEMBER

Check physician name, payment number, and doctor number before using a new supply of claim cards. Make sure the pre-printed information is correct.

Type on cards if possible — if not, print legibly.

Complete claim cards in full — see page 14 of your Guide.

Include **number** of referring doctor as well as name and initials.

Include group and identity numbers on all correspondence.

Letters and reports should be attached to the associated claim cards and sent in a separate envelope.

DO NOT USE STAPLES.

Green re-referral cards for psychiatry MUST be returned to the psychiatrist's office to accompany his billing. Do not forward directly to the Plan.

Indicate time that service was rendered for items 0106, 0113, 0102, 0105, 0112 and all emergency specialist visits; e.g. 0205, 5005, 7005.

When billing for anæsthesia state time, surgery and name of surgeon.

Clarify that patients were seen separately when billing item 0120 for two members of the same family on the same date.

Do not send WCB or DVA claims to the Plan.

Mail your claim cards daily or at least weekly.

Use sufficient postage.

Check remittance statements carefully before resubmitting claims.

Refer to your Preamble.

Refer to your Guide.

Twelve month maximum limit on submission of accounts, see — Reminders page 19 of your Guide.

This Guide is designed to enable you to submit accounts in such a way that they may be paid promptly by the Plan (most of them by computer processing, without manual intervention).

With over 1.5 million claims being received each month and more than 2,600,000 persons insured, computerization is the only answer to processing accounts and prompt payment of your claims. However, computerization, as most of us have experienced in our private lives, has its frustrations! DETAILS ARE IMPORTANT. Please read this brochure attentively, keep it handy, refer to it, and we are convinced that if you follow these guidelines, the majority of your accounts will be paid promptly.

The Computer does not correct errors or inaccuracies. Whenever an account card is rejected by the computer because of incomplete information, incorrect I.D. number or other incompatibilities this inevitably causes a delay in processing the account. Manual handling is then required and can result in the claim not being included in the next payment to your office.

The Medical Services Plan of British Columbia makes every reasonable effort to avoid returning accounts to the doctor for additional information. However, because we cover the whole province we may have many individuals with the same family name and initials. Therefore, it becomes impossible to correct identification numbers or, in some cases, dependent numbers. Thus accuracy in the information provided on the card becomes vital to rapid payment of the account.

From time to time seminars for physicians and office personnel are held at the offices of the Medical Services Plan in Victoria. These seminars include a tour of the Plan and talks regarding billing procedures. Seminars are also held at various major centres throughout the province to accommodate office personnel from all areas of the province. These seminars are a valuable learning experience for both of us and we encourage your participation.

CONTACTING THE PLAN

Correspondence to the plan should be directed to the plan as follows:

Claims information — to the Claims Division
Status information — to the Registration & Premium Billing Division
Coverage periods — to the Registration & Premium Billing Division.

Because clerical files, in group number and identity number order, are located on more than one floor in the Medical Services Plan building, information requests directed to the Registration & Premium Billing Division require you to provide as much information as possible for referral to the proper file:

When the identification numbers are known, please provide the group number and identification number as well as the dependent code, and specify exactly what information you require, e.g., correct name, coverage period, etcetera. The Plan staff will research the information and reply as soon as possible.

Telephone calls requesting research of subscribers' files must be restricted to a maximum of three family units.

Under normal circumstances, the Plan is unable to provide identity numbers of patients. It is the patient's responsibility to provide this information. In emergency cases when this information is required, please direct the enquiry to the New Registration Division. Please provide the following details in order that the correct identification numbers can be located:

- surname and initial(s) of the subscriber (head of household)
- subscriber's birthdate
- home address
- social insurance number

The same details must be provided if telephoning the Plan for urgently required information.

Your cooperation in providing the information requested will expedite the handling of your enquiries.

Patients requesting individual coverage should be advised to contact the Plan direct for information and application forms.

New identification cards are issued to subscribers when any change of status occurs, including a change of group number, but are not issued for a change of address.

CLAIMS PROCESSING

A great deal of effort has been devoted to the area of claims processing. The method of payment developed by the Medical Services Plan of British Columbia takes advantage of the potential of the computer through a system of continuous flow processing.

1. Claims are received in the mailroom and passed to the camera section.
2. Each claim card is assigned a plan reference number for purposes of Plan retrieval. NOTE: The first 3 digits of the plan reference number indicate the Julian calendar date (i.e. the day of the year [1 through 365] which the claim card was received by the Plan).
3. Each claim card is microfilmed to provide a readily accessible record for Plan purposes. (Do **not** write on reverse side.)

4. The data entry section makes a separate record tape of each fee item on the claim card together with the patient identification information in a form suitable for computer input. Treating each item as a separate entity from the computer standpoint prevents one item which requires manual adjudication on any card from delaying payment for other items which can be processed automatically.
5. This information (4 above) is passed to the computer for preliminary checking. NOTE: 10 per cent of the claims fail at this point due to inaccuracies in the billing.
6. The next step in the computer adjudication is to check to see if the person named is insured for the date of service stated.
7. Claims for persons whose premiums were paid up at the time the claim was received proceed to the last step of computer adjudication which ensures that the billing follows the intent of the Commission's Payment Schedule. Billings which conform to these adjudication rules proceed to automatic computer payment.
8. Fee items which do not pass the preliminary check, the eligibility check or computer adjudication require manual handling in order to correct or adjust before they can be processed for payment.
9. Those claim cards which cannot be corrected are returned to doctors' offices.

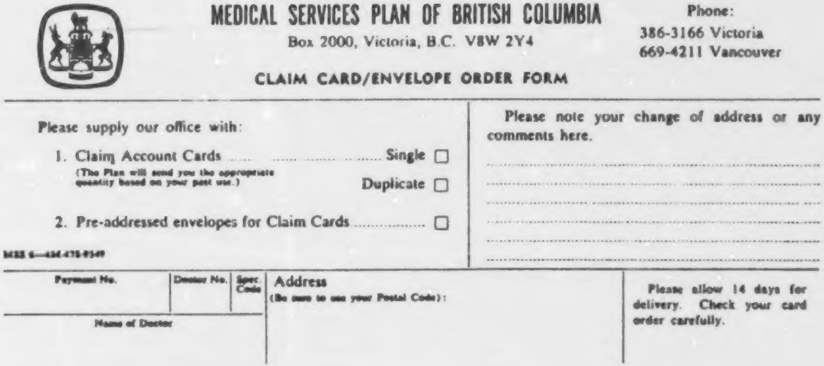
CLAIM CARDS

Doctor numbers and payment numbers are provided by the Medical Services Plan of British Columbia. The numbers issued by the Plan for payment purposes are not to be confused with the doctor's permanent registration number issued by the College of Physicians and Surgeons of B.C. Requests for change of payment number, locum tenens arrangements and assignments of payment to clinics, hospitals or other practitioners are also arranged by the Plan. No such assignment is possible without completion of the appropriate approved legal assignment form.

The claim card you use is pre-imprinted with the payment number to which the service will be credited, the personal doctor number, the doctor specialty code, the claim number, the clinic name (where applicable) and the name of the doctor. The doctor who performs (or is responsible for) the service must be identified. Any misuse contravenes the Medical Services Act and Regulations.

There is only one form of claim card and it is available in either the single or duplicate form. Use of the duplicate form will provide you with a carbon copy for your records. Supplies are obtained by writing or phoning as indicated below. When re-ordering, complete the claim card order form enclosed with your previous claim card order, and outline any changes which you wish made.

Medical Services Plan
P.O. Box 1600
Victoria, British Columbia V8W 2X9
Phone no. 386-3166 (Victoria) or 669-4211 (from Vancouver)



MEDICAL SERVICES PLAN OF BRITISH COLUMBIA
Box 2000, Victoria, B.C. V8W 2Y4

Phone:
386-3166 Victoria
669-4211 Vancouver

CLAIM CARD/ENVELOPE ORDER FORM

Please supply our office with:

1. Claim Account Cards .... Single ☐
   (The Plan will send you the appropriate quantity based on your past use.) Duplicate ☐
2. Pre-addressed envelopes for Claim Cards .... ☐

Please note your change of address or any comments here.

....
....
....
....
....
....

[illegible]

Payment No. | Doctor No. | Spec. Code

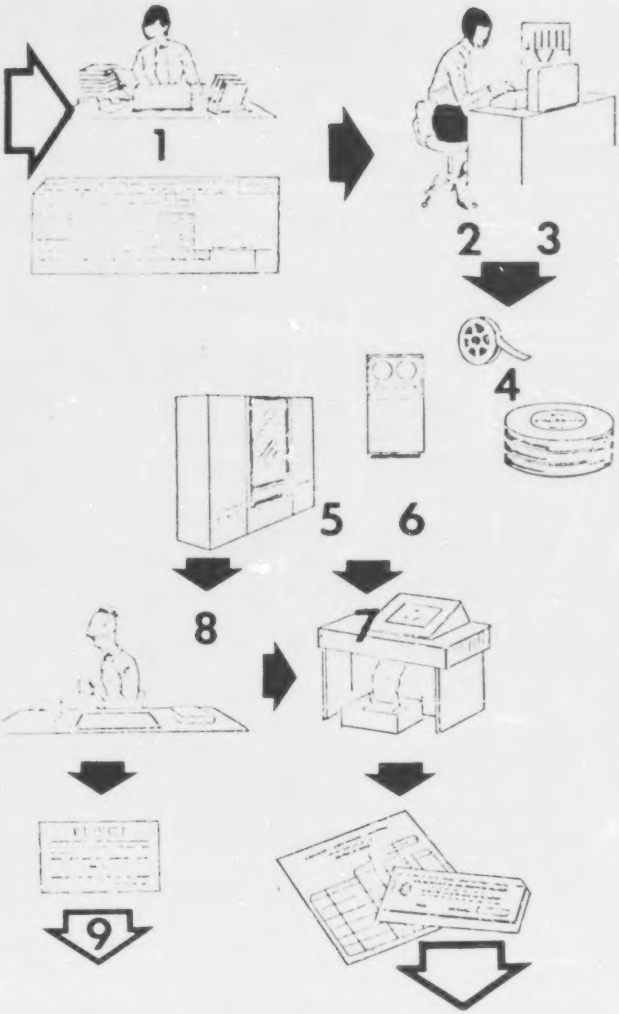
Name of Doctor

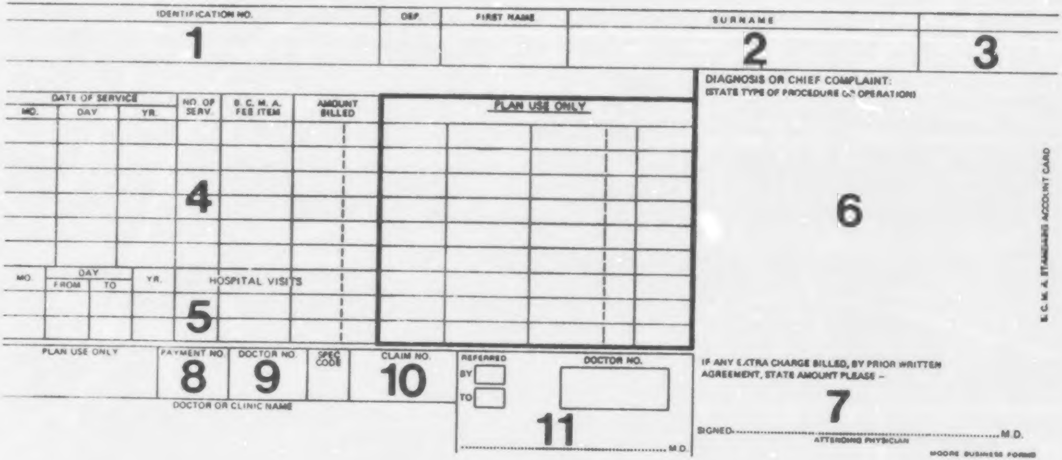
Address
(Be sure to use your Postal Code):

Please allow 14 days for delivery. Check your card order carefully.

90

Medical Insurance





IDENTIFICATION NO.
1
DEP.
FIRST NAME
SURNAME
2
3

DATE OF SERVICE
MO.
DAY
YR.
NO. OF SERV.
B. C. M. A. FEE ITEM
AMOUNT BILLED
4

MO.
DAY
FROM
TO
YR.
HOSPITAL VISITS
5

PLAN USE ONLY

DIAGNOSIS OR CHIEF COMPLAINT:
(STATE TYPE OF PROCEDURE OR OPERATION)
6

B.C.M.A. STANDARD ACCOUNT CARD

PLAN USE ONLY
PAYMENT NO.
8
DOCTOR NO.
9
SPEC CODE
CLAIM NO.
10
DOCTOR OR CLINIC NAME

REFERRED
BY ☐
TO ☐
DOCTOR NO.
11
.... M.D.

IF ANY EXTRA CHARGE BILLED, BY PRIOR WRITTEN AGREEMENT, STATE AMOUNT PLEASE –
7

SIGNED.. M.D.
ATTENDING PHYSICIAN

MOORE BUSINESS FORMS

COMPLETING THE CLAIM CARD

Do not write on the reverse side of the card.

1. Identification and dependent number:
   Copy exactly as they appear on the subscriber's identification card for the specific patient.
2. Name (that is the name of the **patient**):
   First name or initials and surname — copy exactly as they appear on the identification card. Additional information which could assist us in processing your claim:
   A. Spouse's name for common-law wife
   B. Stepfather's name for stepchildren
   C. Maiden name for newly married women who still have their own coverage.
   D. A child who reaches the age of 19 ceases to be covered as a dependent unless satisfactory evidence is presented to the Plan that the child is in full-time attendance at a school or university and is under 25 years of age.
   E. Services for newborns who are not yet registered may be billed using the mother's identification number and dependent #66. "Newborn male" or "newborn female" should be indicated in the first name area on the claim card and the surname of the mother should be used. Fill in the date of birth and indicate the mother's name in the space beneath the identification number.
3. Month, year of birth.
4. Services rendered:
   The first six lines are for home, office, and emergency visits, consultations, anæsthesia, and all procedural fee items such as surgery, diagnostic, x-ray, laboratory, etcetera. Each line must be completed in full using only one date of service per line. Fee item numbers and amounts are obtained from the Payment Schedule, published by the Medical Services Commission. When two procedures for the same fee item are performed during the one visit these should be billed as 2 × item with the total amount at 150 per cent of the signle fee (e.g. 2 × 7030 = 1½ × the approved fee).
   N.B. See Preamble to the Payment Schedule.
5. Hospital visits:
   Each line must be completed in full with "from and to" dates of services for **one month only**.
   Visits for supportive care, concurrent or directive care, and long-term hospitalization should be billed in accordance with the directives laid down in the Preamble to the Payment Schedule.
   NOTE: Charges in excess of those directives must be accompanied by an explanatory letter.

6. Diagnosis or chief complaint (state type of procedure or operation):
   There must be enough information to substantiate the fee item billed. In the case of specified consultations, specified surgical items and some emergency services, the Payment Schedule stipulates that a letter of explanation or an operative report is required. In such cases your account cannot be processed without this additional information.

7. Signature:
   The physician rendering the service signs the claim card or has a person authorized by him sign the claim card on his behalf. A stamped signature may be used. The doctor is responsible for the use of such a stamp and is also responsible for the accuracy of the claim card account.

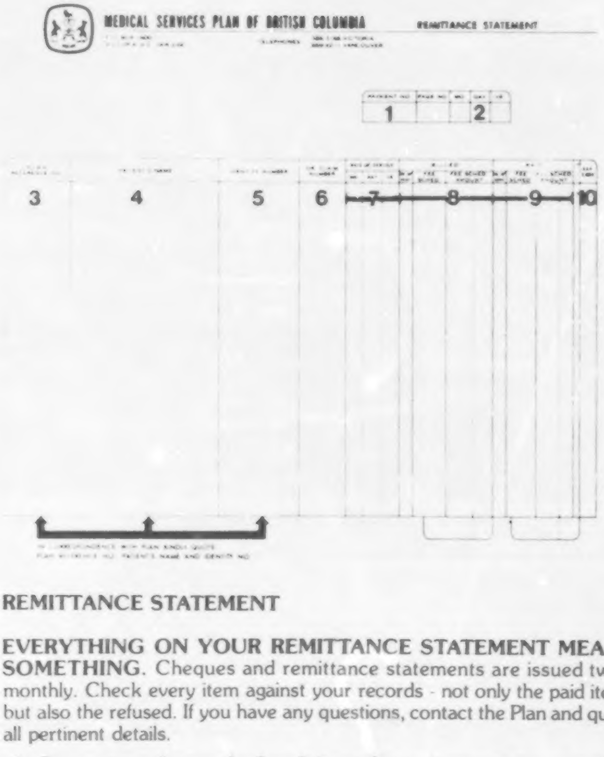
8. Payment number:
   Cheques will be made payable to the name and address on our file corresponding to this five digit number.

9. Doctor number and specialty code:
   The personal number and specialty code of the doctor rendering the service. For claim cards issued without preprinted doctor number, the billing office must enter the doctor number and specialty code before the card will be accepted for payment by the Plan.

10. Claim number:
    Each claim card has an individual claim number which appears on the remittance statement. Some billing offices use this number for their claims reconciliation.

11. Referred "By" or "To" and doctor number:
    The name, initials and **doctor number** of the doctor involved must be entered if the patient has been referred to or from another doctor and for all x-ray, laboratory and diagnostic items.
    Doctor numbers can be obtained from the Medical Directory issued by the College of Physicians and Surgeons of B.C.
    NOTE: By failing to indicate "referred to" you may delay or prevent payment at specialist rates to the consultant. It must be made clear by the referring doctor whether the consultant was requested to give continuing care, directive care or concurrent care.

NOTE: Claim cards with a green band which are distributed to psychiatrists are re-referral cards for psychiatry. These cards must be completed and signed with the referring doctor's name, number and specialty code, and must indicate whether consultation or continuing care is requested. **Return these cards to the psychiatrist's office. Do not forward the referral card directly to the Plan.** The psychiatrist must send this re-referral card to the Plan together with his account for services rendered. This will enable the Plan to pay the psychiatrist at specialist rates.


MEDICAL SERVICES PLAN OF BRITISH COLUMBIA
REMITTANCE STATEMENT
1
2
3
4
5
6
7
8
9
10

REMITTANCE STATEMENT

EVERYTHING ON YOUR REMITTANCE STATEMENT MEANS SOMETHING. Cheques and remittance statements are issued twice monthly. Check every item against your records - not only the paid items but also the refused. If you have any questions, contact the Plan and quote all pertinent details.

1. Payment number — the five digit number as it appears on your claim cards indicating to whom payment for your services is to be made.
2. Date the cheque was issued.
3. Plan reference number — each claim card received will be processed with an individual plan reference number which must be quoted on any correspondence regarding this claim. The first 3 digits of this 8 digit number represents the Julian date which is the number of the day in the year on which your claim was received.
   January 1st — 001
   July 15th — 196 December 31 — 365
4. Patient's name — listed alphabetically by surname.
5. Identity number — identification number and dependent code which must be quoted on all correspondence.

6. Doctor claim number — from the claim card submitted.
7. Date of service — month, day and year of service(s) rendered.
8. Billed — number of services
   fee item
   fee amount
9. Paid — number of services
   fee item
   fee amount at agreed fee
10. Explanatory codes — these are shown to clarify any differences between the claims submitted and the payment made. See Key to Explanatory Codes on reverse of remittance statement.
    (N.B. — Where you are advised of a change in patients' initials, identity number, dependent number or other — please correct your file and in any subsequent correspondence or further claims, use corrected identification — otherwise, you will cause delays in handling.)
11. Code No. 66 — When this code appears in the dependent number area on your remittance statement it indicates that payment has been made for services rendered an unregistered child. Please advise the subscriber to register the child immediately if he has not already done so. This will ensure that future claims for this dependent will be paid.

Key to Explanatory Codes.

02 Birthdate changed to match those on patient's identity card. Please adjust your records to avoid delay in payment of future billings.

03 Name or initials changed to match those on patient's identity card. Please adjust your records to avoid delay in payment of future billings.

06 Limit reached in accordance with Rules and Regulations.

07 Dependent not covered, dependent not registered, or dependent outside the scope of definition.

08 This patient does not have coverage for this date of service.

09 Duplicate billing — payment has been made in prior remittance.

10 Credit adjustment — service was underpaid in prior remittance — letter has been sent.
NOTE: Debit adjustment of previous payment will appear on a later remittance.

11 Debit adjustment — service was overpaid or paid in error on a prior remittance. Letter has been sent. Minus sign indicates this amount is being deducted, and this amount should be subtracted when balancing your statement.

12 The service charged is considered to be included in a composite fee.

13 Balance of composite fee after deducting payments made in previous remittance for service considered to be included in the scheduled composite fee.

14 Laboratory procedure not approved for this payment number or date of service prior to approval date.
NOTE: The certificate of approval issued by the Medical Services Commission makes reference to the categories involved. If the service provided is not included in the category of approval which you hold, it is not insured when performed at your facility.

15 Charges appear to relate to benefit exclusions — service interpreted as periodic or routine health examinations, or the service available from Public Health authorities.

16 Charges appear to relate to benefit exclusions — medicines, materials for injections, supplies, appliances, certificates, etcetera.

17 Adjusted to the appropriate approved fee item in accordance with information submitted.

18 Adjusted between the Plan and your office.

19 Adjusted to agreed Schedule. Refer to Preamble to approved Payment Schedule.

20 See explanatory letter.

21 Adjusted to the Payment Schedule approved or prescribed by the Medical Services Commission.

22 Your charges at specialist rates are paid at general practitioner rates in accordance with the Regulations of the Medical Services Act for non-referred patients.

23 This patient has coverage under the identity number or dependent number shown for this month of service. Please correct your records accordingly to avoid delay in payment of future billings.

25 Based on the information you have provided, this service does not appear to have been rendered.

26 On the basis of the information provided, payment has been made in equity with the fee schedule item indicated.

27 No payment made as further information requested has not been received. Please re-submit with required information.

28 A change in coverage dates now permits payment of this previously refused account. Please submit any unpresented accounts for this identity number to the personal attention of the Claims Manager.

50 Claim previously paid. Referral not yet received. Please ensure its receipt at the Plan before review in three months with possible adjustment to general practitioner rates.

51 Proper referral has now been received and this claim will remain paid at specialist rates.

REMINDERS

1. Claims for services rendered for illness and/or injury which are the responsibility of the Workers' Compensation Board or the Department of Veterans' Affairs should not be submitted to the Plan.
2. Twelve month maximum limit on accounts — billings must be submitted to the Plan no later than 12 months after the date of service. There is no liability to the patient or the Plan after 12 months.
3. Cheques and remittance statements are issued twice monthly.
4. Adjusted accounts should be examined carefully, and if you cannot agree with the adjustment, they should be resubmitted with additional information to substantiate your claim and/or write the medical advisor. Be sure to check the remittance statements before rebilling.
5. Claim cards should be mailed daily, if possible, or at least once a week. It is advisable to make a note of the date the cards are mailed, and those claims which do not appear on remittance statements within 90 days should be resubmitted in detail marked "RESUBMISSION", showing original date sent and with an accompanying note. Please ensure that sufficient postage is put on the envelope when mailing claims to the plan.

Payment Schedule

6. The Payment Schedule is prepared by the Medical Services Commission:
Parliament Buildings
Victoria, B.C.
V8W 3C8

Clarifications, Adjustments, Changes and Deletions to the Payment Schedule

7. Changes, amendments, and fee items, and suggestions are sent to you via the Plan's Newsletter or by special notification. It is essential that you make the appropriate changes to your Payment Schedule as they are published.
8. A complete understanding of the Preamble is essential to proper interpretation of the Payment Schedule.

9. Miscellaneous "999" Items:
The fees intended to be covered by this paragraph are those billed for rare procedures — or an unusual combination of procedures — unlikely to be repeated and for which no fee exists and for which it appears unnecessary to establish a fee.
Such fees shall be computed in equity with the procedures of similar responsiblity and skill. When submitting an account to the Plan, include a copy of the operative report or outline the reason for the charge. For such cases a fee number may be designated by taking the first digit of items in the applicable section and adding the digits 999 (e.g. Orthopædics — 5999, General Surgery — 7999). If necessary, fees may be settled by the procedure set for disputed fees.
Fees for specific new procedures, for which it is appropriate to establish a fee and which will undoubtedly be repeated should be requested through the British Columbia Medical Association. When agreement has been reached with the Medical Services Commission a fee will be established and accounts may then be submitted and payment will be made retroactively to include services performed up to one year previously.
It is inappropriate to use 999 numbers to bill for specific new procedures which have not yet been endorsed by the British Columbia Medical Association or the College of Physicians and Surgeons of B.C. and such billings will not be honoured by the Plan.

10. *Asterisks appearing beside an item denote that this service is included in the visit fee.

DELAYED PAYMENT

Payment is delayed because of:
Poor writing.
Typing errors.
Incomplete claim cards.
Incorrect identity number, dependent number, name, fee items, amounts or year of service.
Reports not submitted with claims when required.
Not enough information.
No referring doctor given.

Payment Schedule

The following comments on the interpretation of specific items of service may be pertinent to your practice. Read at least those sections which refer to your type of practice. They will help you understand the need to bill in a particular way in these cases, and will help avoid delays in processing your accounts.

General Services

0012 can be billed **only** when no other charge is made for that blood specimen or that visit by the physician or laboratory taking the specimen.

There is no fee item or charge for taking smears or urine specimens.

0014, 0015 — first injection and visit fee will be paid. Subsequent injections include visit fee or visit fee includes injection.

See note regarding RED CROSS TRANSFUSION SERVICE, General Services.

0351 — Dialysis fees; maximum number for any patient is 4 — see NOTE.

0350, 0351, 0355, 0352, 0361 — See notes in Payment Schedule.

0323 & 0355 — include 2 weeks care in the fee.

7239 — No consultation fee may be charged in addition.

Item 0034 — maximum per sitting — 3

0066 — applies when patient has previously been treated.

0065 — applies when patient has **not** been previously treated.

0081 — This item can be billed **only when emergency lifesaving continuous bedside care is required.** It must be supported by a **written** explanation of the need for the service and details of the services performed. (Do not write on reverse of card.) Read explanatory note in Payment Schedule.

Bedside and Resuscitative Service

First day — 0081 or consultation and up to a maximum of 3 visits.

Second day — to a maximum of 3 visits.

Third to seventh days — 2 visits per day — see Payment Schedule re: maximum charge.

Diagnostic Procedures

Second procedures performed at the same time or under the same anæsthetic must be billed at 50 per cent.

0712 is included in 0704 and 0705.

0704 is included in 8200.

If a repeat sigmoidoscopy is done in conjunction with surgery the charge for the sigmoidoscopy is included in the the surgical fee.

0730 or 0737 with 0700 is paid in full.

Needle biopsies include only those done by needle.

0756 and 0757 include items 0014 and 0015.

Annual maximum for allergy testing for items 0762, 0764 is item 0765.

Annual maximum for 0768 is 0769.

Cardio-vascular Diagnostic Procedures:
Second procedure performed is paid in full if marked "extra".
Third and other "extra" items are paid at 50 per cent.

Elapsed time must be stated for items 0845 and 0846.

General Practice

0101 — States — any condition requiring complete examination and detailed history. Whenever such an examination and detailed history is repeated within six months the necessity for the second examination must be adequately explained. See note in General Practice..

0106, 0113, 0102, 0105 — Time at which the request was received and the visit made must be stated. It is suggested that indication be given as to where the patient was seen, home or hospital.

0110 — must state name and number of the referring doctor and when received by the Plan must be supported by indication of referral on the referring doctor's claim card.

The maximum for item 0120 is 4 services per patient per year.

0119 is paid in addition to 0118 but 0119 is **not** payable in addition to hospital visits.

Anæsthesia

Understanding the anæsthesia preamble is essential to proper billing.

Fee item and description of diagnostic or surgical procedure must be stated; otherwise, payment cannot be made.

The time the anæsthetic started and ended must be stated. Be sure to clarify whether service was rendered a.m. or p.m. Alternatively use 24 hour time reporting method, e.g. 20:10 to 22:30.

When an anæsthetic fee item already contains more than one anæsthetic procedural unit, bill the fee item only once for each service rendered.
1051 × 1 (you will automatically be paid 3 units)
1058 × 1 (you will automatically be paid 5 units)

Epidural Anæsthesia

(a) The Economics Committee of the BCMA re-confirms the intention of the Schedule. Where a surgeon, obstetrician or other practitioner administer the epidural anæsthetic while performing a surgical, obstetrical or diagnostic service there will be no separate charge for the anæsthesia.

(b) Epidural anæsthesia for obstetrical cases may be charged on the following basis:
  (i) Evaluation Unit
  (ii) Procedural Unit for Fee Item 4100
  (iii) Time Units.

The charging of time units should be limited to the actual time spent with the patient. Where it is necessary to administer a repeat injection, time only should be charged.

Anæsthetic evaluation units do not apply to items 1055, 1031, 1033, 1061, 1078 to 1087 & 1089.

1064 — This applies to all people following the day of their 74th birthday.

Dermatology

0205 — can only be billed subsequent to consultation. State time visit is made.

0217 is paid in equity with subsequent visit fee following a billing within one month for item 0216 or 0217.

0218 — quote pathology report.

Ophthalmology

2010 is paid for medical conditions (other than examination for visual acuity) only when the patient is properly referred. (See Preamble) — otherwise item 2015 applies. See "Guidelines for Billing Eye Examinations."

2005 may be charged in place of consultation. State time visit is made.

Eye examinations; e.g. 2019, etcetera, first at 100 per cent, rest at 50 per cent to a maximum of three examinations. Read explanatory "Note" in Payment Schedule.

Complicated surgical procedures require an operative report; e.g. 2163, 2168.

Otolaryngology

2505 — may be charged in place of consultation. State time visit is made.

Special examinations — first at 100 per cent, second and third at 50 per cent — maximum of 3. Read "Note" for Special Examinations in Payment Schedule.

Vestibular tests — maximum charge — see "Note" in Payment Schedule.

"Operation only" items — pre- and post-visits are payable, except on the day of the "operation only" item.

State anæsthetic used (local or general) when billing fee item 2413.

Internal Medicine

See Preamble, paragraphs 4, 5, 6, 7, 15, 17.

Written report required for repeat item 0325.

See "Note" regarding items 0334 and 0337.

Neurology

Neurosurgery

3157, 3159, 3164 — state levels involved.

Obstetrics and Gynaecology

4005 — can only be billed subsequent to consultation. State time visit is made.d

See note regarding 4013, 4015 and 4016.

4013 — applies to cases referred within the first 28 weeks of pregnancy for total care. The consultation is included in fee item 4013.

Those cases referred after 28 weeks gestation, charge consultation, prenatal visits, and 4104.

4100 — includes office visits for all less serious complications. House visits and hospital visits can be submitted in addition to item 4100, and will be considered on an individual basis for treatment of conditions not normally expected to arise during pregnancy. N.B.: See "Note" following Item 4100 in the Payment Schedule. NOTE: 4100 is an inclusive fee; pre-natal visits should not be billed on a per visit basis unless more than one physician is involved in the care.

4103 — is maximum amount for pre-natal office visits, and any portion of pre-natal visits should be billed on individual service basis (i.e. 0100, 0107, 0101).

4104 — includes delivery and post-natal care.

4102 — pre- and post-natal care for emergency Cæsarean Section when clarification of emergency condition is given. 4105 is paid in addition.

4101 — pre- and post-natal care for elective Cæsarean Section. 4105 is paid in addition.

Pre-natal visits are paid prior to D & C (4500).

4560 — is included in pre- and post-natal period and in pre- and post-operative period for pelvic surgery.

4111, 4112 — state length of gestation.

4118, 4119 — See Payment Schedule re maximum charges.

Pre-operative visits are paid in addition to items 4500, 4506, 4510 and 4531.

Orthopædics

5005 — can only be billed subsequent to a consultation. State time visit is made.

Normal post-operative period for orthopædic procedures is considered to be 42 days.

Inclusive fees for fractures requiring reduction should state: site, type of fracture, type of anæsthetic used.

Dislocation of clavicle with closed reduction is charged on a per visit basis. See Payment Schedule re maximum charge.

3159 — state levels involved.

Plaster casts are included in inclusive fees for fractures.

Pædiatrics

Repeat consultations (0512) must be properly referred. (See Preamble).

0514 for counselling — to a limit of 4 per person per year.

0505 — must state time call was placed.

Psychiatry

0622 — includes assessment of parents, guardians, or other relatives and the written report. Please refer to new format in Payment Schedule.

Green re-referral card from referring doctor must be submitted along with the accounts for any service 6 months after the last referral in order that specialists' rates can be paid.

Names of additional members seen must be stated when billing items 0633 and 0634.

See NOTE regarding sessions which exceed one hour.

Plastic Surgery

See note regarding major and minor consultations.

The surgeon is advised to obtain prior authorization regarding cosmetic surgery as outlined in the Preamble to be sure the Plan agrees the proposed surgery is not cosmetic.

6005 — can only be billed subsequent to consultation. State time visit is made.

6069 — state area from which lesion removed.

7038 — operative report required.

6078 — may be billed for in-hospital care only.

6155 — letter detailing medical requirement is necessary when this is billed.

General Surgery

7005 — can only be billed subsequent to consultation. Time should be stated.

7019 — requires **letter from the certified surgeon in charge,** regarding the necessity for specialist assistance.

Necessity for second assistant at surgery should have **adequate written explanation from the surgeon.**

7680, 7585, 7677, 7038, 7624, 7596, 7768, 7771, — submit operative report with claim card.

Miscellaneous billing (7999) — should be accompanied by an operative report or where one is not available, a description of the operative procedure should be provided.

Unless otherwise stated, pre-operative visits within one month and post-operative visits for 42 days are included in the surgical fee.

See Preamble regarding operative surgical billing.

Cardio-Thoracic Surgery

7805 — can only be billed subsequent to consultation. State time visit is made.

7846 — Send letter with claim card.

7915 to 7919 — apply only to certified specialists.

See Preamble regarding operative surgical billing.

Urology

8005 — can only be billed subsequent to consultation. State time visit is made.

Prostatectomy — see notes in Payment Schedule.

Laboratory Procedures

Laboratory procedures performed in physicians' offices that will be accepted for payment are listed below:

9003	Hæmatocrit, micro or macro
9007	Hæmoglobin — cyanmethæmoglobin method
9000	Hæmoglobin — other methods
9011	White blood cell count only
9012	Differential white cell count
9031	Sedimentation rate
9101	Simple stained smear

9110	Nasal smear for eosinophils
9111	Examination for Pinworm Ova
9113	Direct examination for cutaneous fungus — KOH preparation
9115	Trichomonas and/or Candida (direct examination)
9119	Candida Culture
9234	Occult blood
9349	Immunological gonadotrophin (pregnancy test)
9364	Microscopic examination of centrifuged specimen of urine
9365	Routine screening urinalysis (to include sugar, protein, blood, pH, bile and ketones or any part thereof)
9366	Complete diagnostic urinalysis (to include semiquantitative protein, specific gravity, semiquantitative sugar, microscopic examination of centrifuged sediment)
9401	Electrocardiogram — technical fee
9429	Seminal examination for presence or absence of sperm
9436	Fern Test

X-ray

All claim cards must give name and number of referring doctor. Non-certified radiologists will be paid at 75 per cent of the listed fee. Repeat x-rays within 14 days should be charged at 80 per cent of amount.

Laboratory and Nuclear Medicine Procedures (Full List)

All claim cards must give name and number of referring doctor.

*— regarding items for physicians to consult pathologist.

CBC — See NOTE.

0012 is not paid when any test is performed on that blood specimen. See note regarding Chemical Profile 9139.

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WORKERS' COMPENSATION BOARD PATIENTS

WORKERS' COMPENSATION BOARD FORMS

Special forms and regulations apply to patients seeking treatment for injuries that occurred at their place of employment. These forms and regulations also apply to injured victims of criminal acts.

Form 8

This report needs to be submitted if:

1. The claimant will be disabled beyond the date of injury, i.e. will be off work for one day or more.
2. The claim is for a hernia, back condition, shoulder or knee strain or sprain, or an industrial disease.
3. The Workers' Compensation Board requests this report.

Form 11

Must be sent in every two weeks while patients are off work, otherwise they will not receive their cheques regularly. Submitting Form 11 is the responsibility of the attending physician.

Form 11A

Can be used as the first report if Form 8 does not apply. Form 11A is also used as a billing form for submitting accounts.

Workers' Compensation Board Patients

General Points

1. Any injured worker who is under treatment shall not be allowed to leave the province or place themselves under the care of a physician elsewhere without first obtaining the permission of the Board and their attending physician.
2. The physician's letterhead is to be used when reopening a claim or submitting a report from a consultant.
3. The billing of WCB accounts by general practitioners is as follows:

   a) Item 0129: the minimum charge for WCB Physician's First Report (Form 8) to include the initial visit is 0100 plus $10.00. Note that the minimum charge applies to cases where Form 8 is necessary.

   b) Examples of services and billing charges for which Form 11A applies:
   Treatment of a strained muscle not requiring lay-off from work should be charged under item 0100.
   Treatment for a minor laceration or foreign body should be charged under item 7029.

   c) Fill in all forms completely, otherwise the worker's claim cannot be processed and both the doctor's and worker's payments will be delayed.

   d) 0100, 0101, 0103, 0106, 0113, 0102, 0105, 0112, 0111, plus $10.00 will be paid where Form 8 is required. This does not apply if the surgical fee is the greater amount.

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MEDICAL EMERGENCIES

GENERAL ADVICE ON EMERGENCIES

1. It is not the responsibility of the MOA to decide that the doctor cannot see a patient the same day because of a busy schedule. The MOA should present the information from the patient to the doctor and the doctor should decide whether a telephone call, house call, or office visit is indicated. Remember that children with ear infections, diabetics with infections, babies and elderly persons with vomiting and diarrhea, as well as many other patients with problems, can develop complications rapidly.

2. When handling medical emergencies that arrive in the office or when handling emergency phone calls, MOAs should realize their limitations and not assume more responsibility than they are qualified to safely undertake. This is necessary for the protection of the patient, the MOA, and the doctor.

3. The MOA should discuss beforehand with the doctor how to deal with situations likely to occur in the office, including everything from routine problems to emergencies.

4. If a patient loses consciousness, it is most important to check that the patient's breathing is not obstructed by the tongue or foreign material. Unconscious patients should never be given fluids or food by mouth.

5. A glass of cold water taken by mouth (if not contraindicated) will often calm upset or hysterical persons. The

water can be given to a patient in the office or directions can be given over the telephone.

TYPES OF EMERGENCIES AND THE ACTIONS MOAs CAN TAKE

External Hemorrhage

Unless there is danger of glass or other sharp particles in the wound, apply direct pressure over the bleeding area, using a firm pad (for example 4-gauze) and a bandage.

If possible, elevate the bleeding area.

Tourniquets are not usually indicated because of the danger involved. In any case where a tourniquet is used, it must not be covered, and must be carefully loosened at frequent intervals (never greater than 10-minute intervals). For the patient's safety, with the doctor's approval, mark the patient's forehead with a "T".

Burns

Pain and loss of fluid in extensively blistered areas can result in serious shock.

Place the burned area in cold water or apply ice compresses. Chemical burns should be thoroughly rinsed with water, preferably running water.

Do not apply greasy materials to burns since they have to be cleansed off later.

Nose Bleed (Epistaxis)

Apply pressure to the nostrils if the bleeding originates in the nostrils. Keep the head up rather than too far back to prevent the patient swallowing blood. Reassure the patient and get the patient to breathe through the mouth.

The doctor may have to pack the nose or cauterize the bleeding vessel.

Foreign Bodies

Eye

If a foreign body is embedded in the eye or is on the cornea, it should be attended to by a doctor. The patient should be instructed not to move the eyes. Patch, if necessary, one eye or both eyes depending on the injury.

If the object is on the surface, you may try to remove it by:

Pulling one lid over the other lid to dislodge the particle.

Rinsing the eye with warm water or saline, using moist cotton balls or an eye dropper.

Using a moistened cotton-tipped applicator to pick off the particle.

Always wash your hands before touching eyes. Use only clean equipment.

Have the patient wait to see the doctor in case other treatment such as an antibiotic or ointment is required.

Ear Canal or Nose

Foreign bodies in ears or noses should be removed by a doctor because of the possibility of pushing the object in further and making the injury worse.

Throat

For foreign bodies in children's throats, turn them upside down and shake or slap them on the back.

For foreign bodies in adults' throats, have them bend well forward and give them a sharp slap on the back. Preferably apply the Heimler manoeuvre.

Abdominal Pain

The patient should be instructed not to take anything by mouth and specifically not to take a laxative until seen by the doctor.

Insect Stings

Apply compresses of appropriate antidote and, if necessary, get medical assistance.

Fainting

Loosen tight clothing and place the patient's head at a lower level between the knees if the patient is sitting.

Smelling salts may be used. Fresh air and a drink of water may help.

Heart Attack (Myocardial Infarction)

If medical help is not immediately available, the inhalator provides oxygen and emergency treatment.

CVA (Cerebrovascular Accident)

Medical treatment is required immediately.

Seizures

Be sure the environment is as safe as possible so that patients will not harm themselves. Move furniture that patients may upset.

See that breathing does not become obstructed, but do not try to separate the teeth.

If possible, time the seizure and observe the patient's actions.

Patients may be drowsy after a seizure.

Convulsions

Babies and young children often tend to have rising fevers that cause convulsions.

A warm bath may be given, but take care that the temperature of the water is safe and that the child is safely held. Usually it is best just to keep the child warm.

Croup

Babies sometimes develop croup with respiratory difficulty. Moisture helps, e.g. running hot water in the bathroom will quickly provide a humid atmosphere. Steam may be used, but safety precautions must be taken to prevent burning the child.

Asthma

Keep the airway clear and obtain immediate medical treatment.

Shock

Symptoms and causes of shock vary, but essentially shock results from insufficient volume of blood in the circulatory system to maintain adequate blood pressure and circulation. This condition may be caused by loss of body fluids or blood, or by dilated vessels.

Fluids may be given by mouth if not contra-indicated, e.g. the patient is unconscious or possibly requires surgery.

Keep patients who are in shock quiet and maintain their body temperature with a blanket or its equivalent. Avoid extreme temperatures as they take blood away from vital areas.

Anaphylactic Shock

Medical treatment is required immediately.

Insulin Shock

Insulin shock results from too much insulin and hence a blood sugar that is too low (hypoglycemia).

It may result from loss of food through vomiting, skipping part of a meal or delaying a meal, or from excessive exercise.

Most patients are familiar with the warning signs of insulin shock such as weakness, profuse perspiration, dizziness, blurred vision, confusion, and carry ready sources of sugar with them (Life Savers, chocloate bars, or sugar lumps), which should be taken at once.

If the patient is unconscious, medical treatment is necessary as nothing can be given by mouth.

Diabetic Coma

Diabetic coma results from too little insulin and hence a blood sugar that is too high (hyperglycemia).

It is usually precipitated by eating too much or by eating the wrong foods. It can also be caused by infections or from over exposure.

Symptoms include excessive thirst, loss of appetite, nausea and vomiting, headache, listlessness, disturbed vision and equilibrium, and frequently a sweetish odor to the breath.

Medical treatment is required.

Note: *All diabetics should carry in a conspicuous place identification giving the necessary information.*

Poison

General: rush the patient to the nearest hospital emergency department.
Bring the vomitus or the container that held the poison to the hospital for positive identification.

Corrosives: do not induce vomiting. If the antidote is not immediately available, give milk preferably or water to dilute the poison (not in too great a volume).

Petroleum Products: do not induce vomiting. Give a little milk if possible. Keep the airway clear.

Pills (Tablets and Capsules): induce vomiting.

Food Poisoning: induce vomiting. Give milk after vomiting.

Psychological Emergencies (e.g., attempted suicides, depression, etc.)

For background information read *The Allied Health Professional and the Patient* by Ruth Purtillo, published by Saunders.

Note: *Whenever it is necessary for you to answer an emergency call or send an ambulance, inhalator, etc., be very sure that you get the correct information from the caller. When excited, people often get confused, so try to calm them and be sure that, as well as the name, you get the correct telephone number and address.*

MEDICAL CONDITIONS MOAs SHOULD RECOGNIZE

The MOA should be able to recognize, through signs and symptoms either seen in person or as described over the telephone, the following conditions and arrange for appropriate medical care:

Abdominal pain

Acute rheumatic fever

Airway obstruction

Asthma

Bleeding:
— external
— internal

Cardiac arrest

Cerebral emergencies:
— high fever
— sudden fever
— headache
— convulsions
— stroke

Chest pains

Croup

Depression

Diabetes

Diarrhoea

Dysuria

Earache

Epilepsy

Fainting spells

Foreign bodies

Fractures

Gall bladder disease

Heart failure (pulmonary edema)

Hemoptysis

Hemorrhage

Infections

Ingestion of poisons

Injuries

Insect bites

Nose bleeds

Pain

Pancreatitis

Paralysis

Phlebitis

Pneumonia
Pulmonary embolism
Shock
Sore throat
Sudden death
Threatened suicide
Throat constrictions
Vomiting

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ASSISTING THE DOCTOR

EXAMINATIONS

Patients frequently require only a regional examination and often no special preparation of the patient is necessary. Other examinations however, require instructions on procedures to be carried out before coming to the office or after arriving. It is up to the MOA to be sure that patients understand what must be done and to make any explanations necessary to reassure them and get their cooperation.

The assistance MOAs give during examinations varies depending on the doctor's preferences, the sex and age of the patient, and the type of examination. However, it is the MOA's responsibility to have the room and equipment ready and the patient properly prepared. When the MOA is assisting a patient, or handling equipment, she should wash her hands before and after the procedure.

Main methods used by doctors in examining patients include:

Inspection: observing by looking at the patient.

Palpation: feeling by hand the area of examination (manual examination). If both hands are used, as in pelvic examination, it is referred to as a bimanual examination.

Percussion: tapping an area to hear the sounds produced or to see resulting reflex movements.

Auscultation: listening to sounds within the body, usually by means of a stethoscope.

The main positions that doctors get patients to assume during examinations include:

Supine: lying on the back with the face upwards.

Prone: lying on the abdomen with the face to one side.

Sim's (or left lateral): lying on the left side with the left arm behind and left leg almost straight, the right arm flexed in front for support, and the right leg flexed.

Lithotomy: lying on the back with buttocks to the extreme edge of the table and feet supported in stirrups.

Knee-Chest: on knees and chest with thighs at right angle to the table. The head turned to one side, arms extended above head, and knees separated.

Upright: standing position.

THE COMPLETE PHYSICAL EXAMINATION

Making the Appointment

1. The MOA should know her employer's preferences. Doctors vary in their working habits; some do not want to have one physical examination followed by another, some prefer them at a certain time of day, and many want the number for any one day limited.
2. The MOA should know how much time the doctor requires. Many specialists take $1^1/_2$ hours for a first visit while a family physician may wish to have $^1/_2$ hour.
3. Many doctors request an early morning specimen of urine for inspection at the time of the physical examination. When the appointment is made, instruct the patient to bring the specimen.
4. If patients are on medical insurance plans, ask them to bring their identity cards. Inform patients that the examination is not covered by the plans if it is for insurance, preplacement, or industry, or for a periodic checkup.

Preparation for the Examination

The MOA should be familiar with the equipment the doctor requires and have it conveniently placed.

Equipment for the General Examination

Ophthalmoscope and auriscope (otoscope)

Tongue depressors

Light

Percussion hammer

Blood pressure machine (sphygmomanometer)

Stethoscope

Safety pin or applicator sticks

Absorbent swabs

Kidney basin or receptacle for used equipment

Paper tissues, e.g. Kleenex

Nasal speculum

Tuning fork

Equipment for the Rectal Examination

One glove (right or left depending on doctor) or finger-cots and powder for putting on gloves unless powdered disposable gloves are used.

Lubricant (water soluble)

Kidney basin

Anoscope or rectal speculum with a light

Cotton-tipped applicators

Equipment for the Pelvic Examination

Glove or gloves (with powder if needed)

Vaginal speculum

Lubricant (water soluble)

Long forceps

Swabs

Paper tissues to wipe off the lubricant after the examination

Stool at the foot of the table

A good light properly placed

Equipment for Cervical (Papanicolaou) Smear Add

One glass slide and mailing container

Ayre's spatula or tongue depressor

Requisition

Urinalysis

The MOA may do the urinalysis before the examination.

Preparing the Patient

Complete any required forms.

Allow the patient to go to the washroom.

Take the weight and height of the patient.

Prepare for the Doctor's Examination

The room should be comfortably warm and free of drafts

Reassure patient and explain what he or she is to do. Instruct the patient to remove all clothing. If a gown is to be worn, it should be put on with the opening at the back and only the top tie done up.

Put out the drape sheet.

Assist the patient as required. Most patients, unless handicapped, prefer to be alone. Help the patient into sitting position on the table. If no gown is used the sheet, folded over 2 or 3 inches at the top, should be placed around the patient's chest and draped over the patient.

Draping

Draping must be done quickly and simply to prevent interfering with the examination. The sheet should keep patients adequately covered to prevent embarrassment.

As the patients lie down, place the sheet lengthways over them.

To Expose the Chest and Breasts: pull the gown up and push the sheet down. Some doctors like a small pad placed under the shoulder on each side as the breast of that side is being examined.

To Expose the Abdomen: pull the gown over the chest and push the sheet further down.

To Expose Legs: quickly pull the upper part of the sheet over the abdomen and tuck the part over the legs between the legs.

To Expose the Rectal Area: assist the patient into Sim's (left lateral) position, draping with the sheet lengthways, and pushed up to expose the rectal area.

To Expose the Pelvic Area: assist the patient onto the back and, placing a hand at the split in the table, help the patient to move down until the buttocks reach the hand. Place the feet in stirrups. Place the drape sheet lengthways across the abdomen and legs. Sometimes the doctor may prefer to have the patient in Sim's position.

PARTIAL EXAMINATION REQUIRING PREPARATION OF THE PATIENT

The MOA should explain to the patient the type of examination and the preparation necessary.

Chest

Equipment

Stethoscope

Patient's Preparation

Remove upper outer clothing, or undo clothing to the waist and slip it down to expose the chest.

Remove the brassiere.

A slip may be left on and later slid down over the shoulders for the examination.

Assist the patient to sit on the table.

Rectal

Equipment

As listed under the complete physical examination.

Patient's Preparation

Strip from waist down — upper clothing need not be removed.

Assist the patient into Sim's position, draping with the sheet lengthways over hips and legs.

Sigmoidoscopic

Equipment

Gloves (powder if necessary)

Water-soluble lubricant

Long cotton-tipped applicators

Sigmoidoscope with attachments and required accessories (check the light attachment)

Patient's Preparation

Patients are usually required to have an enema two hours before the examination. The MOA should know what preparation the doctor desires and be sure the patient understands the instructions. Patient should void prior to the examination.

Assist the patient into the knee-chest position or onto the side, depending on the doctor's preference. Drape with the sheet. If paper sheets are used a hole can be cut out to expose the rectal area and the sheet draped over the back and legs if the patient is in the knee-chest position.

Abdominal

Equipment

Stethoscope

Applicator stick or absorbent swab

Patient's Preparation

Patient should void prior to the examination.

Remove the clothing necessary for exposure of the abdomen.

Assist the patient to lie on the table, draping with a sheet or towel.

Pelvic

Equipment

As listed under complete physical examination.

Patient's Preparation

The patient should void prior to the examination.

Stockings, and often shoes, may be left on, but otherwise the patient should strip from the waist down.

Assist the patient onto the table, place legs in stirrups (be sure the patient's buttocks are at the extreme edge), and drape with the sheet lengthways across the abdomen and legs.

COLLECTION OF SPECIMENS

The MOA has an important role in collecting specimens for examination and in sending the specimens to the correct laboratory when required. Incorrectly collected or incorrectly handled specimens may cause misleading results or an inability to complete the test.

Note that different specimens require different handling methods. For correct procedures with specimens, contact the laboratory doing the test or read their instruction manual. Use only the specific laboratory's manual as procedures vary between laboratories.

The MOA should be familiar with the various containers for collecting specimens and the requisitions that accompany them.

The doctor's name and address should be on all requisitions.

If a rubber stamp is used, each sheet of the requisition must be stamped.

Requisitions for work done at a clinical laboratory should have the patient's medical insurance plan and identity number on them.

If information regarding collection of the specimen appears on the requisition, it should be carefully read and followed. Changes occur from time to time as new methods are introduced.

Cervical Smear Specimen

As part of the pelvic examination the doctor may take a cervical smear.

Care of the Slide

Air dry and place the slide in a mailing container.

Check to see that the requisition is completed; include the doctor's name and address, the patient's name, husband's name, birth date, latest cytology number, etc.

Fold the requisition, place it around the mailing container, and secure it with an elastic band. Do not put any padding in the container as padding increases the breakage of slides.

If supplies are needed, note this on the bottom of the requisition before folding it.

Blood Specimens — Finger Prick or Skin Puncture

Equipment

Swab with antiseptic

Sterile lancet

Appropriate equipment for collecting the specimen (pipette, hemoglobin chamber, etc.)

Blood Specimens — Venipuncture

Equipment

Tourniquet

Swab with antiseptic

Appropriate tubes for specimens:

Some tests are done on the serum of clotted blood, while others require the use of anticoagulants to prevent clotting. Various chemicals may be used, and it is imperative to check that the correct tube is used for each test. These are usually color coded for various tests. Check instructions.

Specimens sent to the Provincial Laboratories must be in vacutainers provided by the Provincial Laboratories, since treatment of some tubes for other purposes may interfere with the test results. Complete the correct requisitions for each specimen, and if specimens are mailed, place them in correctly labelled mailing containers for sorting at the laboratory.

Requisitions

Band-aid

Syringe and needle or vacutainer holder and vacutainer needle (or vacutainer adapter and needle)

Syringe and needle:

The size of the syringe is determined by the amount of blood required for each test and the number of tests to be done.

The needle size is 19 to 21 gauge, and the length 1 inch.

Blood being put into a corked tube should be squirted in after the needle has been removed to prevent hemolysis of the specimen. Cap the tube securely.

Blood being put into a vacutainer should be allowed to flow into the vacutainer through the needle without any pressure on the plunger to prevent hemolysis.

Vacutainer holder and needle:

Vacutainer needle (disposable) or vacutainer adapter (disposable) with a non-disposable needle.

Place vacutainer tubes for desired tests within easy reach.

Assisting With the Venipuncture

See that the patient is seated or lying down, with the arm exposed and supported.

After the doctor has obtained specimens, leave a cotton ball on the venipuncture site and have the patient bend the arm. A band-aid is applied later.

Rinse non-disposable syringes and needles immediately in cool water to make cleaning easier.

Label all blood tubes and complete all requisitions.

If mailing specimens, place the labelled tube and requisition in the proper mailing container.

If specimens are not to be mailed, secure the correct requisition around each labelled tube with an elastic band.

Nose and Throat or Miscellaneous Swab Specimens

Equipment

Kit available from Provincial Laboratories or a clinical laboratory, depending on test, consisting of:

Sterile swab

Vial containing transport medium

Requisition

Mailing container for specimens

The kits are dated and should be replaced if not used before the expiry date.

Care of the Specimen

After the doctor has collected the specimen, place the swab in the upper part of the vial and break or cut the stick. Do not touch the section of the stick that is in the vial.

Replace the vial cap.

Complete the label on the vial and the requisition.

If mailing, place the vial in a mailing container; otherwise place it in a refrigerator until it is sent to the laboratory.

Slides for Gonococcus or Trichomonas

Equipment

Cotton-tipped applicators

Slides and mailing container

Requisition

Care of the Specimen

Make a smear on a glass slide by rolling the cotton tip over the glass slide.

Air dry the slide and place it in a mailing container.

Complete the requisition, fold it around the mailing container, and secure it with an elastic band.

Place it in a mailing envelope.

Urine Specimens

Urinalysis is one of the most commonly performed tests in a doctor's office, and urine specimens are often required for special laboratory tests.

The procedure and time for collecting a urine specimen varies according to the test. For procedures the MOA should consult the laboratory doing the test or the instruction manual put out by the laboratory.

Early Morning Specimen: one the patient collects on first voiding in the morning. If patients are to bring an early morning specimen to the office, they should be instructed to bring two or three ounces in a thoroughly washed bottle (including the lid). The specimen should be wrapped to keep out the light and refrigerated to help maintain the constituents. Early morning specimens are desirable for pregnancy tests.

Random Specimen: one voided by the patient at any time the specimen happens to be required. Fresh specimens are often preferred when testing for sugar and bilirubin, and sometimes for protein, since stale, unrefrigerated specimens can give incorrect results.

Mid-Stream Specimen: obtained by having the patient void some urine into a toilet and then collecting urine for the specimen.

Use of Reagent Strips

Reagent strips give quick, reliable information, provided the urine specimen is satisfactory and the strips are stored, handled, and read properly.

Instructions in the package should be studied and followed.

Reagent strips will not give dependable results if:

The urine is stale.

The strips have not been kept tightly capped and have not been stored in a cool, dry place.

The time for reading (if applicable) is not adhered to.

The reagent strips are held with the pads down when reading the results.

Use of Clinitest Tablets

Discard old, darkly spotted tablets as they will not give correct results.

Use test tubes of the correct size, available from a physician's supplier.

Follow instructions, measuring drops with the dropper held upright, and watching carefully during the reaction and 15-second waiting period.

Microscopic Examination — Preparation of the Specimen

Spin a well-mixed specimen of urine in the centrifuge.

Pour off the liquid and place a drop of the sediment on a glass slide.

Cover the drop with a cover slip.

Sputum Specimens

A sputum specimen must be coughed up from the respiratory system and not consist of only saliva from the mouth.

For Cancer Cells

Add 2-3 drops of 50 percent isopropyl alcohol as a preservative.

Complete the "Request for Cytology" requisition.

Package it in a non-breakable container if mailing.

For Tuberculosis Examination

Add no preservative to the specimen, which is collected in a bottle provided by the Provincial Laboratories. A first morning specimen is requested.

Complete the requisition.

If mailing, place the bottle in the proper mailing container.

Reports of specimens for culture may be unavailable for several weeks. Reports will be sent out as soon as satisfactory growth appears, or if negative, in 8 weeks.

Stool Specimens

Although stool specimens for testing are taken less commonly in the doctor's office than other specimens, stool specimens can, in certain cases, provide the doctor with valuable information.

The procedure for collecting and handling the specimen depends upon the test to be performed. When instructing the patient regarding the collection of the specimen, explain the procedure carefully. Tell the patient of the necessity of voiding first to prevent contamination of the stool specimen with urine.

Stool specimens for culture (enteric bacteriology) are sent in the kit available from the Provincial Laboratory. One spoonful of stool is placed in the jar containing a reddish-orange solution. The spoon is left in the jar. If the solution has darkened, new kits should be ordered and the old ones returned. Complete the label on the jar. Place the completed requisition in the wax paper envelope before putting it around the bottle. If mailing, send in a correctly labelled aluminum container.

For specimens for parasites and pinworm ova, follow the instructions on the requisitions.

ASSISTING WITH INJECTIONS

Equipment

Swab and antiseptic

Medication

Tourniquet for intravenous injections

Sterile syringe and sterile needle:

1. For intramuscular injection:
   syringe — size suitable for amount of medication.
   needle — gauge that will allow medication to pass through easily.
   — length 1 inch.
2. For intravenous injection:
   syringe — size suitable for amount of medication.
   needle — usually 19 to 20 gauge.
   — length 1 inch.
3. For subcutaneous (hypodermic) injection:
   syringe — small syringe with markings suitable for dosage.
   needle — 25 to 27 gauge.
   — length 5/8 to 1 inch.

Preparation for Injection

Lock the needle onto the syringe; be careful to touch only the hub of the needle.

Place the needle and syringe on the table so the needle remains sterile.

If the medication is in a rubber-tipped vial, wipe the top of the vial with a cotton swab and antiseptic.

If the medication is in an ampul, tap the medication into the lower part of the ampul, wipe the neck with an antiseptic, and then, holding the ampul, file the neck. Place the ampul in a piece of sterile gauze to break off the tip.

Put the medication on the table beside the syringe, with the label towards the doctor.

For a subcutaneous or intravenous injection, seat the patient and expose and support the area of injection.

For an intramuscular injection, get the patient to lie in a prone position on the table or to bend over a chair or table. Expose the area of injection.

Small children are usually held on the lap for injections.

TAKING A PATIENT'S TEMPERATURE

Temperatures are most frequently taken orally (by mouth), but this method is inappropriate for small children and for adults who have a nasal obstruction that prevents breathing through the nose.

Clinical thermometers are specially constructed so the mercury will not fall after registering the temperature until it is shaken down. To shake down a thermometer hold it firmly between the thumb and index finger and flick the wrist sharply. Give yourself lots of room: many thermometers have been broken by flicking them against furniture or other hard objects. Clinical thermometers usually register to 42°C; therefore only cool water should be used to wash the thermometer. If hot water is used, the thermometer may break or become inaccurate.

Disposable plastic covers are available that eliminate the need for disinfecting thermometers after use — the cover completely covers the thermometer so that it does not come in contact with the patient.

Although temperature readings vary from one healthy individual to another, the "normal" temperature is considered to be 37°C (98.6°F). Note that MOAs should be familiar with both Fahrenheit and Centigrade temperatures: although temperatures are now given in Centigrade, many patients will want to know the reading in Fahrenheit.

When taking a temperature by any method always:

1. Wash your hands before and after the procedure.
2. Hold a thermometer by the end away from the bulb to prevent cross-infection.
3. Check to see that the thermometer has been shaken down before using it.

Taking Oral Temperatures

1. Wipe thermometers with a tissue or absorbent cotton if they are kept in a solution.

2. Check the reading. Shake the thermometer down if necessary.
3. Place the thermometer under the patient's tongue and leave there for at least 1 minute.
4. Remove the thermometer and wipe it.
5. Take a reading and record it.
6. Shake the thermometer down.
7. Wash the thermometer in cool, soapy water and rinse well.
8. Place the thermometer in disinfectant.

Taking Axilla Temperatures

1. Be sure the armpit is dry by wiping it gently with a tissue.
2. Wipe the thermometer and shake it down if necessary.
3. Place it in the armpit and have the patient fold the arm over the chest.
4. Leave it in place for 5 to 7 minutes.
5. Follow procedures 4 to 8 for oral temperatures.

Rectal Temperature

For ease in separating oral from rectal thermometers simply use the blue bulb thermometers for all rectal temperatures.

1. Wipe the thermometer if it is kept in a solution.
2. Shake it down if necessary.
3. Lubricate the bulb.
4. For small babies:

   Place babies on their backs, lift legs firmly in one hand and with the other hand insert the thermometer gently, about 1 to 1½ inches.

   For small children:

   Turn the child on the side, hold the legs gently but firmly with one hand and with the other insert the thermometer. Leave the thermometer in place, holding it for 3 minutes.
5. Follow procedures 4 to 8 for oral temperatures.

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OFFICE HOUSEKEEPING

HOUSEKEEPING ROUTINES

Good housekeeping practices are essential in a doctor's office. The impression of cleanliness and order is important to the patient. Also, a tidy office allows everyone to work more efficiently.

It is the MOAs responsibility to organize the housekeeping routines so all areas are attended to regularly. Some jobs need doing only occasionally, while others require more frequent attention. Some even need doing several times daily. Generally, housekeeping for the MOA involves:

1. Planning for the general cleaning services. Many offices in larger buildings have janitorial services provided; others have cleaning firms or individuals who come regularly.
2. Seeing that these services are adequately performed.
3. Planning for routine cleaning of rugs, walls, windows, etc.
4. Being aware of special needs that might arise.
5. Attending to many of the details herself.
6. Establishing a regular routine that will ensure successful housekeeping.

Morning Routine

Arrange the reception area, attending to the necessary materials and papers. Make sure confidential papers are not in a position where patients can read them.

Damp dust all areas as required. Always use a damp cloth for all but polished wood furniture and electrical fixtures to prevent spreading dust about.

If smoking is permitted, see that ashtrays have been washed.

Attend to plants, flowers, aquariums, etc.

Check ventilation.

Check the consultation rooms. See that equipment, stationery, supplies, prescription pads, pencils, pens, and necessary materials are in place.

Check the examining rooms to see that equipment and linen or disposable paper supplies are ready.

Check the soap, toilet paper, and towels in the washrooms.

Clean any equipment in the work room not already attended to and set up the equipment for the day's use.

During Office Hours

Reception Room: tidy magazines, empty ashtrays, and check ventilation.

Consultation Rooms: between patients, remove used equipment for cleaning and replenish supplies.

Examining Rooms: after each patient, remove used equipment for cleaning, take away specimens for examination or delivery, and replace necessary supplies. Prepare the examining table for the next patient.

Work Area and Laboratory: keep clean equipment in a separate area away from used equipment.

Washrooms: check supplies and cleanliness.

Other Routine Cleaning

The MOA usually takes care of the cabinets, equipment tables, cupboards, and sterlizing equipment. Arranging time for these jobs depends on the office routine, the doctor's hours and patient schedules. It is best to try to do these jobs when the office is free of patients. This may mean setting up a schedule that includes a few routine cleaning jobs each day or, if possible, on the doctor's half-day away.

Cupboards, cabinets, and shelves should be done one shelf or drawer at a time. This system prevents confusion when emergencies arise and plans have to be changed. Remove the contents, clean the shelf or drawer, then clean and replace the contents, checking the condition of each item. Do not arrange the doctor's reference or working materials without consent.

Make a note of any supplies that are getting low and need to be ordered.

For details on ordering supplies, see Section 27.

Planning, being constantly aware of the importance of housekeeping, and putting files, equipment, and supplies in their proper place as soon as possible, are essential to maintain good housekeeping standards in an office.

Care of Equipment

An extremely important part of the MOA's work is the care of equipment in the office. She must understand the principles involved in cleaning, sterilizing, and handling the instruments and supplies in order to keep them in the best possible working condition and to protect the patient, the doctor, and herself.

Sterilization

Sterilization of equipment destroys all living micro-organisms present on it. For some procedures sterile equipment is required, but for many procedures clean equipment is satisfactory. However, most clean equipment is sterilized between patients, then kept clean until used.

The following information on cleaning and sterilizing is only a guide. The MOA has to consider each office's facilities when working out the most efficient handling of used and sterilized equipment. Also MOAs must be familiar with the care of specialized equipment used in the office. Instructions for each piece should be carefully studied and filed in a convenient place for future reference.

General Procedure for Cleaning Equipment

Arrange the work area so used equipment and sterilized equipment are kept separate. Procedures for cleaning equipment are as follows:

1. Rinse used equipment under cool running water because discharges and blood will tend to stick if hot water is used. Open the instruments and force water through non-disposable needles with a syringe.
2. Soak instruments in cool water containing a detergent especially made for instruments, or in a disinfectant solution, until time for washing. For soaking, separate the gloves, the needles and glass, the sharp instruments and the dull instruments to prevent injury to yourself and damage to the equipment.
3. Wash in hot water and instrument detergent. Detergents made for this purpose are more effective in removing blood and discharges, and do not leave a coating as do most soaps:

   Equipment should be washed in the water, not over it.

   Use a small brush for serrations, ratchets, grooves, and irregular surfaces.

   Use a cotton-tipped applicator or small tube brush for syringe barrels.

   Use wire stilettes for needles.

   Use a syringe for tubing.

   Wash gloves inside and outside.
4. Rinse thoroughly in hot water.
5. Dry, unless putting immediately into a steam sterilizer. Gloves should be dried inside and outside unless a drying rack is available.
6. Check the condition of all pieces. Set aside equipment that is damaged, e.g., needles that have barbs.

Note: Equipment must be thoroughly cleaned before sterilization.

Methods of Sterilization

The most common methods of sterilization used in doctors' offices are chemical sterilization (cold sterilization) and heat sterilization.

Chemical Sterilization

Since some equipment cannot be subjected to high temperatures, chemical solutions or disinfectants are often used. This method is often referred to as cold sterilization.

A *disinfectant* is an agent that destroys most disease-producing micro-organisms. Disinfectants vary in their effectiveness against different organisms. Thus a disinfectant may be suitable for one job but not for another.

A *germicide* is an agent that destroys most germs.

An *antiseptic* is an agent that inhibits the growth and development of organisms without necessarily killing them. Antiseptics are frequently used on the skin.

The disinfectant container must be covered to decrease contamination and prevent evaporation.

The disinfectant used must be:

The recommended strength.
Changed frequently; some water-soluble base disinfectants require changing every week, while others may be left longer. Read the instructions.
Suitable for the purpose intended.

The instruments must be:

Thoroughly washed, rinsed, and dried before being put in the solution.
Completely immersed in the solution.
Left in solution for the recommended time usually 30 minutes.
Do not add unsterile instruments during the 30 minutes.
The solution should contain an anti-rust substance.

Heat Sterilization

Moist heat is more effective for sterilization than dry heat and is the method usually used.

Steam Sterilizer

A temperature of 100°C (212°F) for 20 minutes kills most micro-organisms, except spore formers.

A sterilizer should be half full of water and be actively boiling throughout sterilization.

Use sterile lifting forceps to remove equipment while still hot after sterilization. The equipment must be put into a sterile container if it is to be kept sterile.

For most effective use the steam sterilizer must be drained and cleaned frequently, usually each week.

In hard water areas, distilled water may be used to prevent deposits forming inside the sterilizer. However, this is expensive if the sterilizer is in constant use. Chemicals available from medical supply sources for removal of the scale and rust are an alternative.

Sharp instruments such as scissors and scalpels are dulled by boiling water and are therefore usually sterilized in an autoclave or disinfectant solution.

Autoclave or Pressure Sterilizer

A temperature of 121°C (250°F) at 1.05 kilograms per square centimetre (15 psi) for 20 minutes will kill all micro-organisms including resistant ones not destroyed by a steam sterilizer.

Pressure sterilizers are useful for sterilizing dressings and gloves, and also for sharp instruments if the sharp edges are protected.

Steam must contact all areas of the article.

Materials used for wrapping must allow the steam to pass through. Kraft paper or cloth are preferable.

Cannisters and boats must have the lids removed and be turned on their sides to allow steam to replace the air inside them.

Steam must circulate freely.

Follow loading instructions. Do not crowd the packages.

Control indicators are available to check the sterilization.

Clean autoclaves about once monthly, depending on frequency of use. Special autoclave cleaners are available.

Follow carefully the instructions for operating the autoclave.

Care of the Doctor's Bag

If the doctor makes house calls, the MOA may be responsible for the care of the doctor's bag.

The contents of the bag will vary considerably from one doctor to another depending on the type of call most frequently made and the doctor's preferences.

The MOA should discuss with the doctor what is required in the bag and should make a list of the desired contents. This list should be posted in the area where the bag is usually taken care of.

Daily Check

Remove and look after any specimens brought in.

Remove used equipment for cleaning or disposal.

Check the list and replace supplies and equipment needed.

Routine Cleaning

In addition to the daily check the bag should be cleaned regularly, depending on the number of calls the doctor makes:

Empty the bag of all contents.
Wipe out the bag.
Check the condition of the equipment and supplies before replacing them.
Set aside out-dated supplies and replace them with fresh ones.
Restock the bag with new supplies as required.

Disposable supplies are very convenient for use in a doctor's bag, but if they are not returned, replacement is easily overlooked. Rather than relying on your memory, always use the list as a guide to prevent the possibility of missing an important item.

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ORDERING SUPPLIES

SYSTEM FOR ORDERING SUPPLIES

It is the duty of the MOA to keep all necessary supplies in stock and readily available for use. To do this efficiently, establish a system.

Keep an inventory, arranged in sections, so supplies that need more frequent replenishing are listed together for easy checking.

Order items regularly, checking the order against the inventory. Having a place for everything and having everything in its place decreases confusion in the office and makes ordering supplies much easier and quicker.

When doing routine housekeeping duties, make a note of supplies that are getting low and, if necessary, order them before the usual time.

Along with the inventory, keep a record of where supplies are ordered — the supply house, stationery supplier, laboratory, drug store, Public Health Department, and so on.

Before changing to another supply house, or changing the type of supply ordered, check with the doctor. Doctors often have preferences and it is their privilege to decide on changes.

Ordering in large quantities may reduce the cost of articles, but it is not always feasible. Be guided in this decision by the amount you normally use, keeping in mind that:

Larger quantities require more storage space.

Ordering Supplies

Larger quantities tie up more capital.
Some supplies deteriorate or become outdated.
New, improved supplies are always appearing on the market.

Keep a record of all supplies ordered, noting the type, amount, cost, date, and supplier.

When receiving supplies, check them to be sure the order is correct both in the amount and type of supplies ordered.

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DISPOSABLE ITEMS

FACTORS INFLUENCING THE USE OF DISPOSABLE ITEMS

Trend to Disposables

In recent years there has been a great increase and improvement in disposable items available for use in doctors' offices. Because disposable equipment is used once and discarded, risk of transferring infection is decreased and time spent by MOAs cleaning and sterilizing is reduced. Disposable supplies have proved a great convenience to doctors and their assistants.

Economy

Weigh the cost (original and replacement) of non-disposable equipment and the time involved in cleaning, checking, and maintaining it against the cost of disposable equipment.

Safety

Care and sterilization of supplies and equipment require time and an adequate sterilizer. If space is limited and sterilizing equipment inadequate, and if time is important, disposable items may be a good investment.

Suitability

Some disposable items cannot be used on equipment presently in the office; sometimes adaptors are required.

Personal Preference

The preference of the individual using the supplies and equipment is always a factor to consider.

In trying to reduce operating costs in an office, it may seem extravagant to use equipment only once before discarding it. However, the cost of most disposable equipment compares favorably with that of non-disposable items; the main advantages lie in its safety and convenience.

Note: Remember that disposable items are intended to be used only once. The construction and materials used in their manufacture are not satisfactory for resterilization and repeated use.

TYPES OF DISPOSABLE ITEMS

Some of the disposable items presently used in doctors' offices include:

Disposable Linen Supplies

Paper sheets, pillow covers, treatment towels, table covers, and gowns come in many sizes and qualities. For minor surgical procedures, sterile drapes and towels are available.

Disposable linen supplies eliminate a laundry problem, are usually less expensive than laundry costs, and require less storage space. However, some of the cheaper paper products make more noise and are not as soft as cotton.

Gloves

Various qualities of pre-powdered disposable gloves designed to fit either hand are suitable for many office procedures. These gloves are clean but not sterile.

Better quality sterile gloves are also available in the required sizes.

Cheaper disposable gloves do not have the same fit as more expensive disposable and non-disposable gloves.

Considering the higher cost of non-disposable gloves and the time consumed in their care, disposable gloves compare favorably in overall cost.

Syringes and Needles

Sterilized syringes and needles come in many sizes, both separately and together, packaged in paper containers and plastic tubes.

Syringes and needles packaged together are cheaper than purchasing each separately.

Color coding makes selection of the desired size easier.

Sterile disposable syringes and needles prevent transfer of infectious hepatitis and other diseases through inadequately sterilized equipment. Also you can be sure the needle point is sharp.

Used needles should not be discarded in the garbage. Addicts could search them out and there is always the danger of the needles causing injury. Needle destroyers are available. Some plastic containers in which sterile syringes and needles are packaged are constructed so that the needle can be sealed in the broken tube after use.

Vaginal Specula

Vaginal specula are available in small, medium, and large sizes. Illuminated vaginal specula come in only one size and are more expensive.

Sigmoidoscope Specula

These are for use with fibre optic equipment.

Ear Specula

Some otoscopes can be used with disposable ear specula, but other models require an adaptor for the tip to fit on.

Thermometer Covers

Tough, clear, plastic sheaths that fit over thermometers are available.

Scalpels

Sterile scalpels and scalpel blades can be purchased.

Sterile Disposable Trays

Various sterile trays are available for such procedures as:
minor surgery
suture removal
change of dressing
catheterization

Lancets

Different types of lancets can be purchased in sterile packets.

Tubing

Tubing comes in different sizes and lengths, sterile or unsterile.

29

HUMAN ANATOMY

MUSCULOSKELETAL SYSTEM

Bones are a form of connective tissue covered by a vascular membrane called the periosteum, which nourishes the bone and provides for growth. The ends of long bones are covered by cartilage and perichondrium.

The functions of the bones of the skeleton (Fig. 1) are to:

1. Provide shape and support.
2. Protect vital organs.
3. Provide a framework for attachment of muscles.
4. Be passive instruments of locomotion.
5. Form joints that are movable and act as levers.
6. Manufacture blood cells.
7. Store calcium.

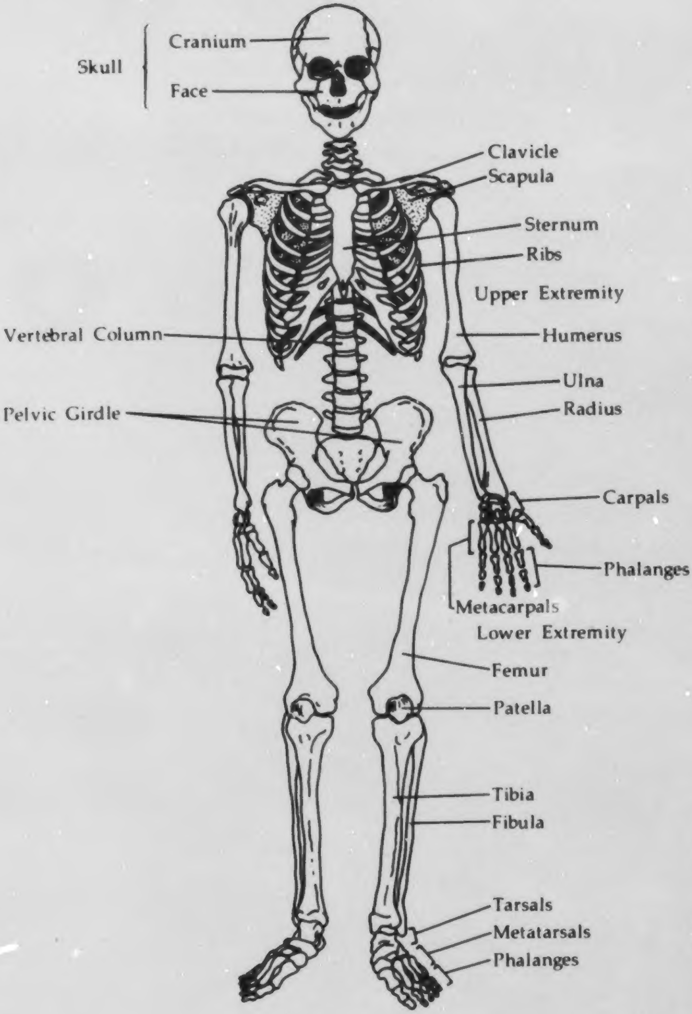
Skull
Cranium
Face
Clavicle
Scapula
Sternum
Ribs
Upper Extremity
Vertebral Column
Humerus
Ulna
Radius
Pelvic Girdle
Carpals
Phalanges
Metacarpals
Lower Extremity
Femur
Patella
Tibia
Fibula
Tarsals
Metatarsals
Phalanges

Fig. 1.
Anterior View of the Skeleton

The musculoskeletal system consists of the following:

Skull

Face

nasal
vomer
lacrimal
malar (zygomatic)
maxilla
mandible

Cranium

occipital
parietal
frontal
temporal
sphenoid
ethmoid

Paranasal Sinuses

frontal
maxillary
ethmoidal
sphenoidal

Ossicles of the Ear

malleus (hammer)
incus (anvil)
stapes (stirrup)

Trunk

Vertebrae

cervical (neck)	— 7
thoracic (chest)	—12
lumbar	— 5
sacral	— 5 in child fuse to form sacrum in adult
coccygeal	— 4 in child fuse to form coccyx in adult

Ribs

12 pairs

Sternum

breast bone

Upper Extremity

clavicle	— collar bone
scapula	— shoulder blade
humerus	— upper arm
radius	— forearm
ulna	
olecranon process	— elbow process on ulna
carpals	— wrist (8)
metacarpals	— palm of hand (5)
phalanges	— fingers (14)

Lower Extremity

Pelvis (hip bone)
ilium (ilia)
ischium (ischia)
pubis (pubes)

femur	— thigh	
tibia	— shin bone	— lower leg
fibula	— calf bone	
patella	— knee cap	
tarsals	— ankle and heel (7)	
metatarsals	— instep (5)	
phalanges	— toes (14)	

Joints

Joints or articulations are the connections between the bones and provide for muscle movement.

Ligaments

Ligaments are the tough bands of tissue that connect bones and maintain the bone's position.

Tendons

Tendons are bands of connective tissue that attach muscles to bones and enable the muscles to move the bones.

Bursae

Bursae are small sacs filled with synovial fluid that prevent friction at the joints.

Muscle Tissue

Muscle tissue, being elastic, capable of contracting and extending, gives the human body the power of movement. Muscles function in response to stimulation from the nervous system. Muscle is classified as:

skeletal (voluntary) — striated in appearance
smooth (involuntary) — non-striated in appearance
cardiac (a special type of involuntary muscles) — partially striated in appearance

RESPIRATORY SYSTEM

Respiration (Fig. 2) is the exchange of oxygen for carbon dioxide in the lungs and cells. Essentials of respiration are:

1. **A moist and permeable membrane.**
2. **Air containing a high percentage of oxygen on one side of the membrane.**
3. **A moving stream of blood with a high percentage of carbon dioxide on the other side of the membrane.**

One of man's vital needs is a continuous supply of oxygen. His metabolism depends on oxygen, and without it he rapidly loses consciousness and dies.

Oxygen in air enters the nose during inspiration and travels through the respiratory passages to the lungs. Here capillary blood takes up oxygen, which is distributed throughout the cells of the body, and releases carbon dioxide, which is expelled from the lungs during expiration.

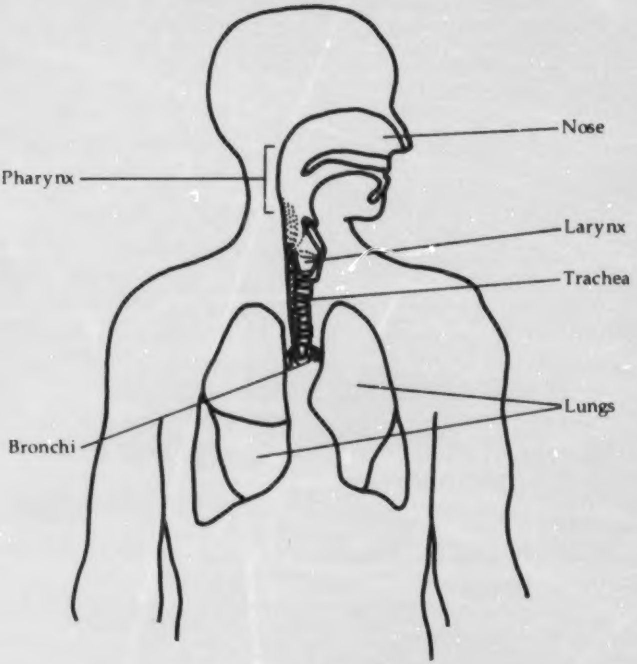

Fig. 2.
Organs of the Respiratory System

Nose

The nose consists of a framework of nasal bone and cartilage covered with skin and lined with a vascular, ciliated mucous membrane.

Nostrils are oval openings on the under surface separated by a partition called a septum. The septum has communicating sinuses — frontal, ethmoid, maxillary, and sphenoid.

Functions:

1. Special organ for the sense of smell.
2. Passageway for entrance of air to the respiratory system.
3. Helps in phonation (voice production).

The advantage of nasal breathing is that the air is warmed, moistened, and filtered.

Much of the respiratory system is well protected by bone; some parts have cartilaginous protection.

The cartilage of the nose and the larynx (voice box), and the cartilaginous rings of the trachea, give protection against injury.

The bones of the face protect the nasopharynx, the part of the pharynx (defined below) situated above the soft palate. The ribs, sternum, and the vertebrae protect the lungs.

While upper respiratory infections are common, nature has provided defence mechanisms. Coarse hairs at the entrance of the nose filter the larger particles from the inspired air. The mucous membrane that lines the respiratory passages has an outer layer of ciliated epithelium, and its tiny, hairlike projections trap debris and micro-organisms that enter with air. A sticky mucus secretion gathers these foreign bodies together. Then the motion of the cilia carries the foreign particles into the pharynx where they are either swallowed or eliminated through the nose or mouth.

Irritation of the respiratory passages due to noxious gases or large foreign particles stimulates additional secretions, and sneezing and coughing help to expel foreign particles and accumulated mucus.

Pharynx

The pharynx is a muscular, membranous, cone-shaped tube between the nasal cavity and the esophagus. It contains the tonsils and the adenoids.

Larynx (Voice Box)

The larynx is a triangular box made up of cartilage and is situated between the tongue and trachea. It contains the vocal folds. The slit or opening between the cords is called the glottis. It is protected by a leaf-shaped lid, the epiglottis. During eating, the epiglottis closes the laryngeal opening, preventing food from entering the respiratory passages. The larynx is the voice-producing organ.

Trachea

The trachea is a membranous and cartilaginous tube about $4^1/_2$ inches long. It is strengthened by C-shaped rings of cartilage. The trachea is located in front of the esophagus.

Bronchi and Bronchioles

Bronchi and bronchioles are similar in structure to the trachea. The trachea subdivides into two bronchi, which are smaller tubes, one bronchus entering each lung. Inside the lungs the bronchi divide into smaller and smaller branches, called bronchioles. The walls become thinner, and the lumen of the bronchioles becomes narrower. Finally each tiny bronchiole ends in a small balloon or sac, called an atrium, and on its surface are small air cells called alveoli.

Lungs

Lungs are the lateral chambers of the thoracic cavity, separated by structures contained in the mediastinum and protected by the chest wall. They are cone-shaped organs, the right lung consisting of three lobes and the left of two lobes. The lungs are porous and spongy.

The bronchi enter each lung at the hilum.

Pleura

The lungs are covered with a thin, elastic membrane called the pleura. One layer, the visceral, adheres to the outer surface of each lung, and follows the lung's contours closely; a second layer, the parietal, is continuous with the first, but it is attached to the chest wall. Serum between the two layers prevents friction as they move over each other during respiration.

URINARY SYSTEM

The urinary system (Fig. 3) consists of the following organs, which produce urine and eliminate it from the body:

Two kidneys
Two ureters
One bladder
One urethra

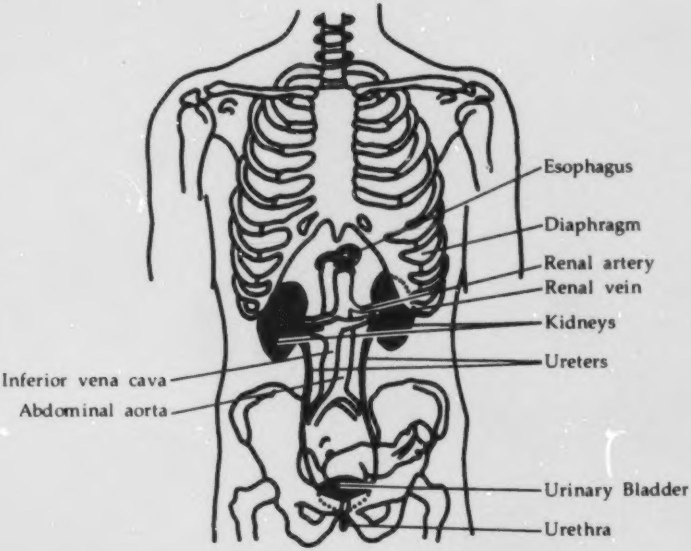
Esophagus
Diaphragm
Renal artery
Renal vein
Kidneys
Ureters
Inferior vena cava
Abdominal aorta
Urinary Bladder
Urethra

Fig. 3
The Urinary System

Formation of urine takes place in the kidneys.

Kidneys are lima bean in shape, the size of a fist, and reddish-brown in color. The left kidney is slightly larger than the right as the liver pushes the right kidney down to a lower level than the left kidney. They lie just above the waistline, on either side of the spine.

Urine leaves the kidneys through the ureters, which are excretory ducts that connect the kidneys to the bladder and serve as passageways for urine. The two ureters are 10 to 12 inches long and 1/5 inch in diameter. Peristaltic waves, about 1 to 5 per minute, force the urine down the ureters into the bladder.

The bladder is a freely movable, hollow, collapsible bag situated in the pelvic cavity. It is of smooth muscle, lined with a mucous membrane. The size, shape, and position depend on the person's age and sex, and whether the bladder is full or empty. It serves as a reservoir for urine before it leaves the body. Aided by the urethra, it expels urine from the body.

The urethra is a small tube leading from the floor of the bladder to the exterior. The female urethra is 1 to 1½ inches long. The male urethra is approximately 8 inches long. The opening of the urethra to the exterior is named the urinary meatus.

In the average bladder 8 to 10 ounces of urine will cause a moderately distended sensation and therefore the desire to void.

Urine

Urine is an aqueous solution of organic and inorganic substances with a slightly acid reaction. It is amber or straw colored. If left standing, it develops an ammonia odor.

Routine analysis of urine comprises the tests for albumin, sugar, specific gravity, pH, and microscopic examinations. A single random specimen may be used for this routine analysis.

Microscopic examinations involve the study of urine sediments. This is done by centrifuging a urine specimen.

Pus cells may indicate infection in the urinary tract. If kidneys are diseased, protein material may accumulate and be excreted in the form of "casts."

Bacteria are found occasionally in urine, indicating infection.

Urine tests indicate pregnancy, since pregnant women shed excess female hormones into the urine.

Disease affecting the bones may be detected by the amount of calcium found in the urine.

A patient may hotly deny taking narcotics, but urine will reveal it. Urine is similarly valuable in detecting industrial poisons like lead and arsenic in the body. In some disorders sugar is found in the urine. Sugar in the urine suggests diabetes, but it can also mean that the patient has been gorging sweets. Normally there is no sugar in urine.

Hematuria — blood in the urine — comes from bleeding along the urinary tract. The site of bleeding and its cause are determined by more precise testing. In the male there is normally no blood in the urine. In the female, menstrual blood may be found. A catheterized specimen may contain blood because of urethral bleeding from the trauma of inserting the catheter.

The specific gravity of urine (1.015 to 1.020) is highest in the morning. Specific gravity is the weight of urine in relation to the weight of pure water and gives a good clue to kidney efficiency. If urine is too watery, the kidneys may be doing a poor job of concentrating wastes, and disease is suspected.

Some abnormal constituents of urine are: albumin, sugar, indican, acetone, casts, calculi (stones), pus, blood, bile pigments.

Often urine is examined in the doctor's office to determine abnormalities relating to the urinary tract, but urinalysis is also of extreme importance in pointing to abnormalities in the functioning of other parts of the body.

CIRCULATORY SYSTEM— CARDIOVASCULAR

Heart

The heart is a muscle about the size of a fist. It is snugly enclosed in a tough protective covering (Fig. 4). It acts like a pressure pump with valves and chambers, circulating blood through the vessels of the body. In 24 hours the heart receives and pumps out again between 7 and 9 thousand quarts of blood.

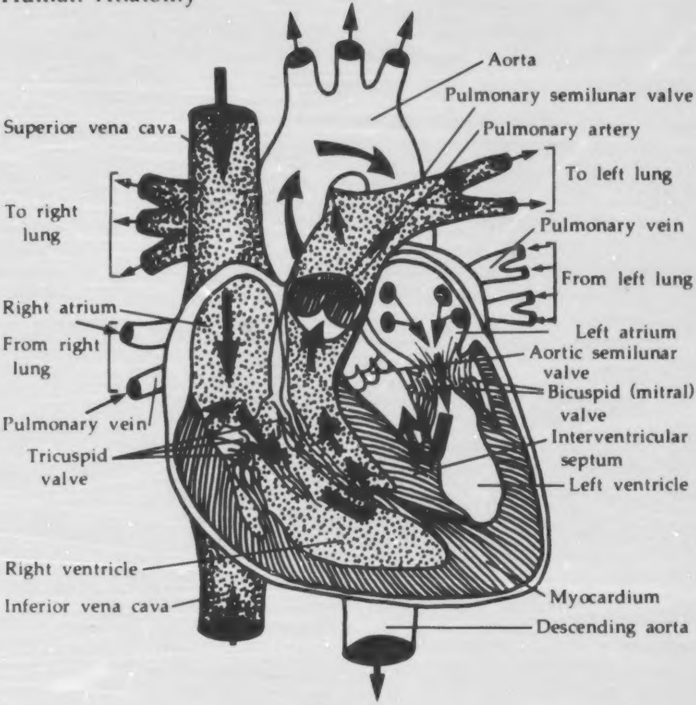
Aorta
Pulmonary semilunar valve
Pulmonary artery
To left lung
Pulmonary vein
From left lung
Left atrium
Aortic semilunar valve
Bicuspid (mitral) valve
Interventricular septum
Left ventricle
Myocardium
Descending aorta
Superior vena cava
To right lung
Right atrium
From right lung
Pulmonary vein
Tricuspid valve
Right ventricle
Inferior vena cava

Fig. 4
The Heart

The heart consists of three layers:

Pericardium: Outer covering, or sac, enclosing the heart.

Myocardium: muscle tissue.

Endocardium: serous membrane of the inner surface and cavities of the heart. It lines the myocardium.

The heart is divided into two parts — right and left side — by a partition called a septa (the interatrial septum and the interventricular septum).

Each side of the heart has two chambers:

Atrium (atria) or **Auricle:** upper chamber.

Ventricle: lower chamber.

Veins carry blood into the auricle. The ventricle, by contracting, forces the blood out again into the body through the arteries.

The opening between the upper and lower chambers on each side is an atrioventricular orifice.

Valves prevent the backflow of blood. When the valves are open, blood passes freely from the atria to the ventricles.

As the ventricles fill, the valves close which prevents a backflow of blood into the atria when the ventricles contract.

The passage of blood through the heart is as follows:

Dark venous blood, containing carbon dioxide and waste matter, is drawn through the superior vena cava and inferior vena cava into the right auricle as the auricle lies momentarily relaxed. When the auricle is full, the tricuspid valve in its floor opens and the blood pours into the right ventricle below. When the ventricle is full, pressure closes the tricuspid valve. This pressure simultaneously opens the pulmonary valve. Blood is forced out of the ventricle through the pulmonary valve into the pulmonary artery that leads directly to the lungs, where the blood absorbs life-renewing oxygen.

Thus freshened, the bright crimson blood returns to the heart.

This movement of the blood from the heart to the lungs and back again is called the pulmonary system. It is accomplished in less than 10 seconds.

The left chamber of the heart carries on the next phase in rhythmic unison with the first phase.

Fresh from the lungs, the blood empties from four pulmonary veins into the left auricle. When the auricle is full, the bicuspid or mitral valve closes. A fraction of a second later the ventricle contracts, the aortic valve opens, and blood is forced from the ventricle through the aortic valve into the aorta (the largest artery of the body).

From the aorta, the red blood branches off, through arteries, arterioles, and tiny capillaries, to every cell in the body before returning to the superior or inferior vena cava through veins or lymphatics. This completes the systemic circulation system.

Cardiac Cycle

Systole: stage of contraction.
Diastole: stage of relaxation.
Rest: pause at the end of a cardiac cycle (one heartbeat).

What causes the heart to pump? The sinoatrial node, a kind of electrical timing apparatus called the pacemaker, normally generates about seventy times a minute a tiny electrical impulse that sweeps down and across the muscle fibres, causing them to contract. The electrical impulses sent by the sinoatrial (SA) node are received by the atrioventricular (AV) node and the Bundle of His.

Arteries

Arteries are elastic hollow tubes that carry blood from the heart. Like a tree trunk, an artery branches and rebranches, growing smaller as it subdivides until it becomes microscopic arterioles and eventually capillaries. Arteries are deepseated in the body for protection. They have three coats. Terms associated with the branching of arteries are:

Anastomosis: the intercommunicating union of parts or branches, in this case distal ends of arterial and venous circulation.
Plexus: many anastomoses within a limited area. In this case a network of nerves, blood vessels, or both.

Capillaries

Capillaries are extremely numerous tiny tubular vessels that connect the arterioles and venules (minute veins), communicating freely to form networks. The single-layered walls permit interchange of gases, nutrients, and other materials between the blood and tissue fluid.

Veins

Veins are collapsible tubes that carry blood to the heart. They begin as tiny venules and grow larger. They have three coats that are thinner than those of the arteries. Many veins have valves that are semilunar pockets.

Veins are superficial (cutaneous) or deep; the latter usually accompany the arteries.

Veins in contrast to arteries: are larger, more numerous, have thinner walls, have valves, and have more frequent anastomosis.

Pulse

A pulse can be defined as an alternate expansion and recoil of an artery. It is usually felt where an artery passes over a bone near the surface of the body.

Blood Pressure

Systolic — greatest blood pressure; it occurs during heart contractions and is usually measured on the brachial artery.

Diastolic — lowest blood pressure; it occurs when the heart relaxes.

Portal Circulation

The portal vein is formed by the splenic and superior mesenteric veins and carries blood from the alimentary tract area to the liver, where excess nutrients can be stored. The hepatic vein then carries the blood to the inferior vena.

The blood in the capillaries of abdominal digestive organs flows through the portal system before returning to the heart.

Fetal Circulation

The respiratory and digestive systems of the fetus do not function; the developing fetus is dependent upon the mother for oxygen and food.

Umbilical Cord — Contains one vein and two arteries for supplying the necessary materials to the fetus and for removing the wastes.

Ductus Venosus — Carries fetal blood to the inferior vena cava. It ceases to function after birth.

Foramen Ovale — Interatrial opening, which allows blood to pass from the right auricle to the left auricle. It closes at birth.

Ductus Arteriosus — Allows much of the blood to by-pass the lungs by connecting the pulmonary artery to the aorta. It ceases to function after birth.

Placenta (afterbirth) — Permits an exchange of products between fetal blood and maternal blood.

CIRCULATORY SYSTEM—HEMIC (Blood)

Blood is a sticky substance with a peculiar odor and a salty taste comprising 1/13 of the total body weight. It is bright red in arteries (except in the pulmonary artery) and dark red in veins (except in the pulmonary veins).

Cells

Erythrocytes (Red Blood Cells)

Red blood cells are oxygen carriers and maintain the viscosity and pH value of the blood. The normal red blood cell count is 4,500,000 per cmm of blood in women and 5,000,000 per cmm in men. Hemoglobin in the red blood cells carries the oxygen and carbon dioxide. Erythroblasts and reticulocytes are immature red blood cells.

Leucocytes or Leukocytes (White Blood Cells)

White blood cells:

Protect the body from pathogenic bacteria.
Promote tissue repair.
Aid in absorption from intestines.
Take part in clotting of blood.

The normal white blood cell count is 5,000 to 9,000 per cmm of blood.

Types: lymphocytes, monocytes, granular leucocytes (polymorphonuclear or neutrophils, eosinophils, basophils).

Thrombocytes (Blood Platelets)

Assist in the clotting of blood.

Plasma

Plasma (about 90 percent water) is the liquid part of blood, or whole blood minus its cells. It can be prepared by centrifuging blood removed from the body after an anticoagulant has been added to prevent clotting. Blood cells, being heavier than water, sink to the bottom of the test tube and clear, straw-colored plasma lies above. Plasma:

Carries oxygen from lungs to tissue.
Carries food material to tissue.
Carries hormones and internal secretions.
Carries waste products to excretory organs.
Aids in maintaining normal body temperature.
Aids in maintaining internal fluid pressure.
Prevents blood loss after trauma by clotting.

Serum

Serum is the pale yellowish fluid left after a clot forms (plasma minus the clotting elements). Clotting checks hemorrhaging. Fibrinogen, calcium salt, and prothrombin are some of the clotting elements of blood.

Serology tests are done on the serum and include ART (a screening test for syphilis) and tests for typhoid, infectious mononucleosis, and certain streptococcal infections (ASTO).

Blood Types

Blood is classified into four groups:

Group O
Group A
Group B
Group AB

Rh Factor

About 85 percent of the population's blood contains a factor referred to as Rh. The remaining 15 percent of the population do not have this factor in their blood (Rh negative).

Rh negative individuals develop antibodies against Rh positive blood, which may result in severe harm if Rh positive blood is transfused to an Rh negative person. Sometimes during pregnancy when a mother is Rh negative and the developing fetus is Rh positive, problems can arise.

CIRCULATORY SYSTEM—LYMPH AND THE LYMPHATIC SYSTEM

Lymph is a colorless or yellowish liquid with an alkaline reaction, salty to taste, and without odor. It consists of blood plasma plus lymphocytes.

Functions:

1. Carries nourishment from the blood to tissues.
2. Carries waste from tissues to the blood.

The lymphatic system depends on diffusion to function.

Lymph vessels drain off lymph from all parts of the body and return it to the innominate veins.

Lymph nodes are responsible for the multiplication of lymphocytes and the addition of serum globulin and antibodies. The nodes also act as protective filters. If you neglect a cut finger for a day, a droplet of pale yellow fluid will likely ooze from the cut. This is lymph loaded with specialized cells that help the white blood cells kill disease organisms. When infection penetrates deeper than a cut, the invading organisms are caught in the lymphatic system and are carried to the nearest lymph node. Here another attempt is made to destroy them.

Lymph nodes are located abundantly throughout the body, with the largest clustered in the neck, groin, armpits, and intestines.

SPLEEN

The spleen is a vascular bean-shaped, gland-like organ located beneath the diaphragm behind and to the left of the stomach.

Functions:

1. Forms erythrocytes during fetal life and after birth if the need arises.
2. Serves as a reservoir of blood cells.
3. Produces lymphocytes and antibodies.
4. Acts as a place of destruction of old red blood cells, or damaged cells, parasites, and other toxic or foreign substances; or as a place of penetration for the destruction of these cells and substances by the liver.
5. Temporarily stores hemoglobin removed from the breakdown of red blood cells.

DIGESTIVE SYSTEM

The digestive system (Fig. 5) is also referred to as the alimentary canal or the gastrointestinal tract (GI tract).

Digestion is the sum of all the changes food undergoes in the GI tract and is dependent upon the proper functioning of certain organs that are grouped together and called the digestive system.

GI tract: a tube running through the body with an opening at both ends. The organs that form the GI tract are:

Mouth
Pharynx
Esophagus
Stomach
Intestine

Several accessory organs to the GI tract are:

Teeth
Tongue
Salivary glands
Pancreas
Liver
Gallbladder
Appendix

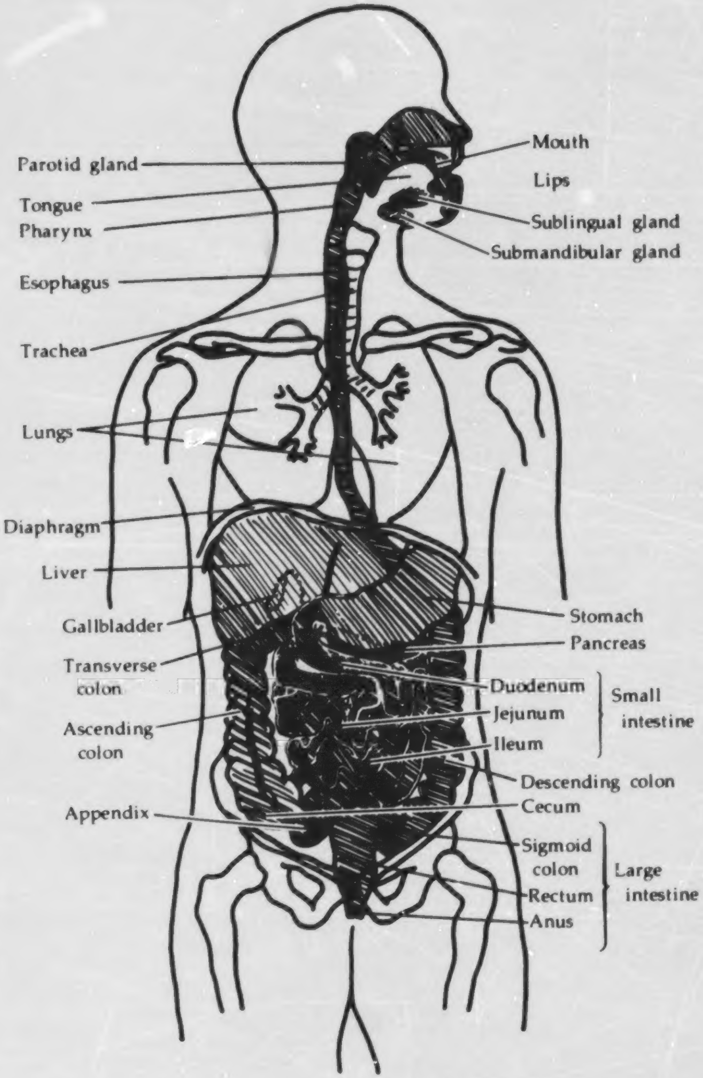
Parotid gland
Tongue
Pharynx
Esophagus
Trachea
Lungs
Diaphragm
Liver
Gallbladder
Transverse colon
Ascending colon
Appendix
Mouth
Lips
Sublingual gland
Submandibular gland
Stomach
Pancreas
Duodenum
Jejunum
Ileum
Small intestine
Descending colon
Cecum
Sigmoid colon
Rectum
Anus
Large intestine

Fig. 5.
Organs of the Digestive System

Accessory Organs

Tongue

The organ of taste (3,000 taste buds). It aids in mastication, deglutition (swallowing), and digestion.

Teeth

Assist mastication through movement of the mandible (lower jaw) and maxilla (upper jaw). Teeth are contained in alveolar sockets.

Salivary Glands

Secrete saliva. Consists of the parotid (Stenson's duct), submaxillary, and sublingual glands.

Pancreas

Roughly a fish-shaped organ that lies behind the stomach with its head and neck in the C-shaped curve of the duodenum (the first part of the small intestine) and its tail touching the spleen. It weighs approximately 2 to 3 ounces and is usually 6 to 9 inches long and 1 to 1$^1/_2$ inches wide. It is a compound gland made up of many lobules with ducts emptying digestive enzymes into the pancreatic duct (Duct of Wirsung). Islets of Langerhans (masses of tissue that secrete the hormone, insulin and glucagon) are scattered throughout the gland.

Functions:

1. Secretes pancreatic fluid aiding food digestion.
2. Secretes the hormone insulin to aid glucose oxidation.
3. Secretes glucagon, which converts glycogen (carbohydrates) to glucose.

Liver

The largest gland in the body, it is dark red, dome-shaped, and consists of four lobes. It fits snugly beneath the diaphragm and over the right kidney.

Functions:

1. Regulates blood volume.

2. Manufactures serum albumin, serum globulin, and fibrinogen.
3. Forms blood in embryo.
4. Produces heat.
5. Forms vitamin A from carotene.
6. Stores iron and copper.
7. Acts as an agent of disease resistance.
8. Excretes various toxic substances.
9. Secretes bile.

Gallbladder

A pear-shaped organ attached to the underside of the liver by the cystic and hepatic ducts.

Function:

1. The gallbladder primarily stores and concentrates bile. Bile is a fluid essential in digesting fats. During digestion the gallbladder contracts, ejecting the concentrated bile into the duodenum. The bile travels through the cystic duct and the common bile duct to enter the duodenum at the Ampulla of Vater.

Appendix

A narrow blind tube about 3 inches long attached to the Cecum of the large intestine.

Function:

1. The appendix has no known function.

Alimentary Canal

Mouth or Buccal Cavity

Consists of hard and soft palate and tongue.

Contains teeth, tonsils, and salivary gland duct orifices.

Food is chewed and mixed with saliva in the mouth. The saliva lubricates and softens the food, facilitating its passage down the esophagus to the stomach.

Pharynx

The part of the alimentary canal between the mouth and the esophagus. Food passes through the pharynx, or throat cavity, to the esophagus.

Esophagus

A muscular tube leading from the pharynx to the stomach about 9 inches long. It carries food by a series of contracting waves (peristalsis).

Stomach

A sac that serves as a food reservoir. It is located in the upper left part of the abdomen, and is the dilated portion of the alimentary canal with two openings — the cardiac and pyloric. The cardiac sphincter is the opening between the stomach and esophagus. The pyloric sphincter is the opening between the stomach and duodenum. The stomach itself has a greater and lesser curvature, fundus and body.

Functions:

1. The stomach receives food in relatively large quentities at mealtimes, holds it while it undergoes mechanical and chemical changes, then passes it on in small portions at frequent intervals.
2. The stomach secretes mucin and gastric fluid.

Contrary to popular belief the stomach is not situated behind the soft facade of the belly but is mainly behind the lower ribs, slightly to the left of centre.

Before the first mouthful of a meal has reached it, the stomach has usually begun to writhe expectantly and to secrete juice. These activities are touched off by the nervous system after the brain has been excited by the sight, smell, or even the thought of food.

When empty, the stomach hangs from the esophagus (gullet) as limply as a deflated balloon and may measure as much as 16 inches from top to bottom (where it opens into the small intestine). Although it is never completely empty (it always contains a small amount of gastric fluid), it is small when food is not present and becomes progressively larger as a meal is eaten.

The stomach contracts every three or four hours even if food is not on the way. The length of time required for the stomach to empty depends on the amount and the composition of the food eaten, e.g. fats tend to delay the stomach emptying.

The most remarkable thing about the stomach is its juice, which contains the powerful hydrochloric acid. When bathed in this fluid and crushed by the stomach's kneading motion, the toughest meat soon loses its individuality and becomes part of a gray mush called chyme.

Resistant mucous lining covers the stomach, preventing it from being digested by its own hydrochloric acid.

Contractions of the stomach mix the food with the gastric juice and carry the semiliquid food to the small intestine.

Small Intestine

The small intestine is a slender, coiled tube about 20 to 23 feet long and 1 inch wide, extending from the stomach to the colon.

It is contained in the central and lower regions of the abdominal cavity and lies between the stomach and the large intestine. The small intestine is divided into three portions:

Duodenum
Jejunum
Ileum

The duodenum is the first region, extending from the pylorus to the jejunum.

The ileum is the last part of the small intestine; it joins the large intestine at the ileocecal valve. This valve is controlled by a sphincter that permits the contents of the ileum to flow into the large intestine but prevents the large intestine's contents from passing back into the ileum. The greatest amount of digestion and absorption of nutrients takes place in the small intestine.

Functions:

1. Secretes mucin and digestive juices for digestion of food.

2. Absorbs end products of digestion into blood and lymph.
3. Secretes hormones.

Large Intestine

The large intestine is about 5 to 6 feet long and approximately $2^1/_2$ inches wide (considerably wider than the small intestine) and extends from the ileum to the anus. It is divided into four parts.

Beginning at the ileocecal valve and progressing towards the anus, the parts are:

Cecum
Colon
Rectum
Anus

The colon is divided into the ascending, transverse, descending, and sigmoid colon. The rectum (5 inches long) leads to the anal canal, which is approximately 1 to $1^1/_2$ inches long. The anus, or external opening, permits feces to be expelled.

Functions:

1. Continues digestion, manufactures some vitamins, absorbs water and eliminates wastes. Waste material eliminated from the bowel is usually referred to as stool or feces.

Peritoneum

A serous membrane that lines the abdominal cavity and covers the intestines and their appendages. The folds of the peritoneum form the mesentery and omentum.

FEMALE REPRODUCTIVE SYSTEM

See Figure 6.

Uterus

The uterus is a hollow, pear-shaped muscular organ situated in the pelvis between the bladder and rectum, and held in position by ligaments. It is approximately 3 inches long, 2 in-

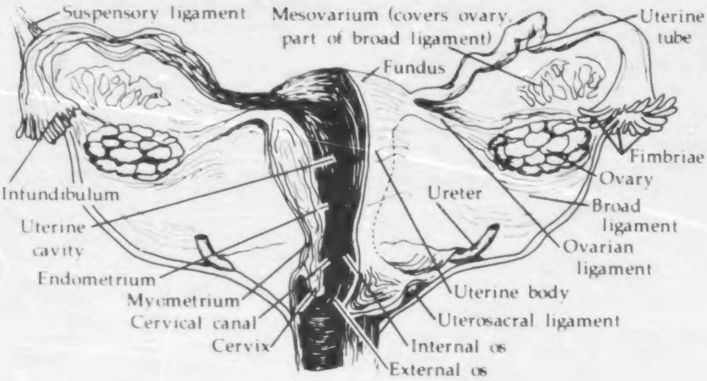
Suspensory ligament
Mesovarium (covers ovary, part of broad ligament)
Uterine tube
Fundus
Fimbriae
Ovary
Infundibulum
Ureter
Broad ligament
Uterine cavity
Ovarian ligament
Endometrium
Myometrium
Uterine body
Cervical canal
Uterosacral ligament
Cervix
Internal os
External os

Fig. 6.
The Uterus and Related Female Reproductive Structures

ches wide, and 1 inch thick. It is composed of two parts: an upper portion, the body, and a lower narrow section, the cervix. The body rounds into a bulging prominence above the level at which the uterine tubes enter; this protruding upper surface is called the fundus. The uterus is composed of three layers: the endometrium or inside layer of mucous membrane, the myometrium or middle layer of smooth muscle, and the serous or covering layer of peritoneum. The uterus is held in place by the broad anterior, posterior, round and uterosacral ligaments.

Functions:

1. To receive the ovum, and if it becomes fertilized to retain the developing fetus. The uterus also expels the fetus (pregnancy and labor).
2. To discharge the compact and spongy layers of the endometrium, attended by bleeding from the torn vessels (menstruation).

Fallopian Tubes (Oviducts; Uterine Tubes)

The fallopian tubes are attached to the uterus at its upper outer angles. They lie between the folds of the broad ligaments and extend upward and outward toward the sides of the pelvis. At the distal end each tube expands into a funnel-like portion called the infundibulum. The outer margin resembles a fringe; the finger-like projections are known as fimbriae.

Function:

1. To convey ova to the uterus.

Ovaries

These two glands resemble large almonds in size and shape. They are located on either side of the uterus, below and behind the fallopian tubes. The distal portion of the tube curves about the ovary so that the fimbriae "cup" over the ovary but do not actually attach to it.

Functions:

1. To produce, develop, mature, and discharge ova (ovulation).
2. To produce the hormones estrogen and progesterone.

Vagina

An expandable, muscular tube, 3 to 4 inches long, extending from the vulva to the uterus towards the back.

Mucous membrane lines the vagina and is arranged in folds (rugae).

Bartholin's glands are small glands located on each side of the vaginal opening.

Vulva

Several parts together constitute the female external genitalia or vulva:

Mons Pubis

A mound or cushion of fatty tissue in front of the symphysis pubis covered with skin and, after puberty, with hair. It persists throughout life.

Perineum

Is the skin-covered area between the vaginal opening and the anus. It is made of muscles and supports the pelvic organs from below.

Labia Majora

Large lips, covered with pigmented skin and hair on the outer surface but smooth and free from hair on the inner surface; the two folds extend from the mons pubis to within an inch of the anus.

Labia Minora

Small lips located within the labia majora.

Clitoris

A small organ composed of erectile tissue situated at the apex of the triangle formed by the junction of the lips of the labia minora.

Hymen

A fold of mucous membrane that surrounds (borders) the vaginal orifice, partially closing the orifice in the virginal state.

Menstruation

A flow of blood, mucus, and tissue shreds from the uterus occurring approximately every 28 days. It lasts from puberty to menopause, the childbearing years.

Menarche

Beginning of menstrual function.

Menopause or Climacteric

Physiological cessation of menstrual flow.

Breasts or Mammary Glands

They extend from the 2nd to the 6th rib and from the sternum to the armpit. The outer surface is convex, with the nipple, which contains openings to milk ducts, projecting from the centre. The nipple is surrounded by the areola, a dark circular area.

Breasts consist of several lobes, each lobe made up of several lobules. Ducts from the various lobules unite, forming a main duct for each lobe. These ducts converge toward the nipple, like the spokes of a wheel.

Function:

1. To lactate, that is to secrete milk for the nourishment of infants.

Antenatal or Prenatal Period

The period before birth, including impregnation, fertilization, and conception.

About every 28 days an ovum is discharged from the ovary into the peritoneal cavity near the fimbriated end of the fallopian tube. This is ovulation. If the female ovum meets a male sperm in the fallopian tube and is fertilized, it moves down to the uterus and implants itself in the endometrium, which is prepared to receive it, and menstruation ceases. This grows to form a fetus which, when mature, is expelled from the uterus.

The fetus is protected by an amniotic sac filled with amniotic fluid, which covers the fetus and umbilical cord. The umbilical cord is bluish-white and connects the mother and child; it carries blood to and from the fetus. The placenta is attached to the uterus wall and supplies the fetus with food and oxygen and carries carbon dioxide and waste products away.

The series of processes by which the baby and the other products of conception are expelled from the mother's body is known as labor. The actual birth of the baby is called the delivery.

The terms "presenting part" and "presentation" designate the part of the baby's body that lies closest to, or has entered, the true pelvis. The part of the body that is lowermost is called the "presenting part."

Vertex presentation is the most common, wherein the presenting part is the upper back part of the baby's head.

Post-Natal Period — Puerperium

The interval from delivery of the baby to return of the reproductive organs to their normal condition. It comprises the first 6 weeks after delivery, an important time for the mothers to make return visits to their doctors.

Involution involves the reduction in size of the uterus following delivery and usually takes about 6 weeks.

MALE REPRODUCTIVE SYSTEM

See Figure 7.

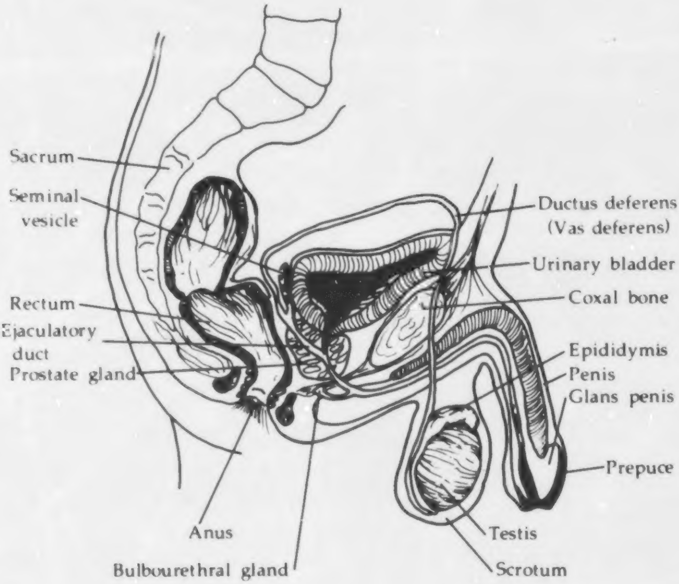
Sacrum
Seminal vesicle
Rectum
Ejaculatory duct
Prostate gland
Anus
Bulbourethral gland
Ductus deferens (Vas deferens)
Urinary bladder
Coxal bone
Epididymis
Penis
Glans penis
Prepuce
Testis
Scrotum

Fig. 7.
Male Reproductive Organs

Scrotum

A pouch which contains the testes and part of each spermatic cord. It is covered with a thin dark skin in folds.

Testes

Two testes are located in the scrotum and are suspended by the spermatic cord. They are an ovoid body covered by fibrous tissue with the central portion filled with seminiferous tubules and blood vessels.

Function:

To produce spermatozoa and internal secretions, including the male hormone testosterone.

Epididymis

Tortuous tubule forming a long narrow body that lies along the upper posterior portion of the testis. The spermatazoa are stored in it.

Seminal Ducts (Vas deferens; two)

Each duct is a continuation of the epididymis and is an excretory duct of the testis. They connect the epididymis and seminal vesicle of each side.

Spermatic Cords (two)

Each cord contains a seminal duct and extends from the inguinal ring to the testis.

Seminal Vesicles (two)

Membranous pouches located between the bladder and rectum. They connect with the seminal ducts to form ejaculatory ducts.

Function:

1. To add a secretion to semen.

Ejaculatory Ducts (two)

Formed by the union of the seminal vesicle and the seminal duct of each side. They converge and pass between the lobes of the prostate gland and open into the urethra.

Prostate

It is situated immediately below the internal urethral orifice and is about the size of a chestnut. It contains glandular muscle tissue.

Function:

1. To secrete prostatic fluid.

Bulbourethral Glands (Cowper's)

Located on each side of the prostate gland, with a duct terminating in the urethral wall. Each gland is about the size of a pea.

Function:

1. To secrete fluid that forms part of the seminal fluid.

Penis

The organ suspended from the front and sides of the pubic arch. It is covered with skin that is continuous with the scrotum.

Urethra

Extends from the urethral orifice to the bladder through the corpus cavernosum urethrae to the glans penis (containing the urethral orifice), which is covered by the prepuce (foreskin).

Semen

Fluid derived from various sex glands in males.

ENDOCRINE SYSTEM

The endocrine glands and the nervous system are responsible for the control and integration of body functions.

The endocrine system is composed of glands that pour secretions into blood instead of into ducts. In other words the endocrines are the ductless glands.

The general function of the endocrine glands is to secrete chemical substances called hormones. Since hormones enter the blood rather than ducts, they circulate all over the body and theoretically can act upon any or all tissues.

Six structures are definitely known to be endocrine glands: the pituitary, thyroid, parathyroid, adrenal glands, the gonads (testes or ovaries), and the Islands of Langerhans in the pancreas.

Hormones play a major role in metabolism and are crucial for normal physical and mental development, for reproduction, and for the maintenance of homeostasis.

Hypophysis (pituitary gland)

Hypophysis (pituitary gland), often called the master gland of the body, is a small, gray, rounded body attached to the base of the brain.

Adenohypophysis (anterior pituitary)

Its secretions, in proper amounts, are essential for normal growth and metabolism. The adenohypophysis secretes the following hormones:

STH: Somatotrophic hormone. Controls growth of the body, especially during the early years.

LTH: Luteotrophic hormone (lactogenic hormone). Stimulates production of progesterone by the corpus luteum. It also promotes and regulates milk secretion (lactation).

LH: Leutinizing hormone (female). Stimulates secretion of sex hormones and the maturation of the ova.

ICSH: Interstitial cell stimulating hormone (male). Stimulates secretion of sex hormones.

FSH: Follicle stimulating hormone. Stimulates production of estrogen and ova in females and sperm in males.

TSH: Thyroid stimulating hormone.

MSH: Melanocyte stimulating hormone. Affects pigmentation.

ACTH: Adrenocorticotrophic hormone. Stimulates secretion by the adrenal cortex. Regulates adrenal glands.

Neurohypophysis (posterior pituitary)

ADH: Antidiuretic hormone. Stimulates water reabsorption in kidney tubules.

Oxytocin: Pitocin. Stimulates uterine contractions and ejection of milk from the mammary glands.

Adrenal Glands

Adrenal glands are located on top of the kidneys, fitting like a cap. The outer portion of the gland is called the cortex and the inner substance the medulla.

Adrenal Cortex

Its hormones:

Provide a regulatory function.

Help control food metabolism, mineral balance, and water balance.

Affect the body's reaction to stress, decrease antibody formation and hence inflammation.

Adrenal Medulla

Adrenalin (epinephrine) increases heart action and blood pressure, and dilates the bronchial tubes to prepare the body for action.

Thyroid Gland

It is located in the neck just below the larynx. Thyroid secretions regulate the body metabolism and help regulate growth.

Parathyroid Glands

They are small bodies attached to the posterior surfaces of the lateral thyroid lobes. They control the amount of calcium and phosphorous in the muscles, blood, and nerves.

Pancreas (Islands of Langerhans)

Its cells secrete insulin, which enables the body to utilize sugar. It also secretes glucagon which increases the concentration of sugar in the blood.

Gonads

Ovaries (female)

Estrogen: produced mostly by the Graafian follicle.

Progesterone: produced by the corpus luteum and placenta during pregnancy.

Testes (male)

Testosterone: produced in the testes.

There are many other hormones with specific functions produced in the body, for example in the liver and small intestine. The functions of the pineal body and the thymus are not clearly understood.

NERVOUS SYSTEM

The central nervous system (CNS) is composed of the brain and spinal cord and is so named because of its central location (Figs. 8 and 9).

The peripheral nervous system (PNS) consists of the nerves and ganglia (groups of neuron cell bodies) outside the central nervous system. A nerve consists of bundles of nerve fibres from different cell bodies that transmit impulses between a part of the central nervous system and some other area of the body. In some nerves the individual fibres all transmit impulses carrying a sensation to the CNS, for example the optic

nerve transmits impulses for vision. In other nerves the individual fibres all transmit impulses from the CNS to a muscle or gland, for example the oculomotor nerve carries impulses to several muscles of the eye, causing movement. Some nerves transmit both types of impulses (mixed nerves).

Spinal Cord

The spinal cord lies within the spinal activity, extending from the base of the skull to the lower border of the first lumbar vertebra, a distance of 17 or 18 inches in the average body.

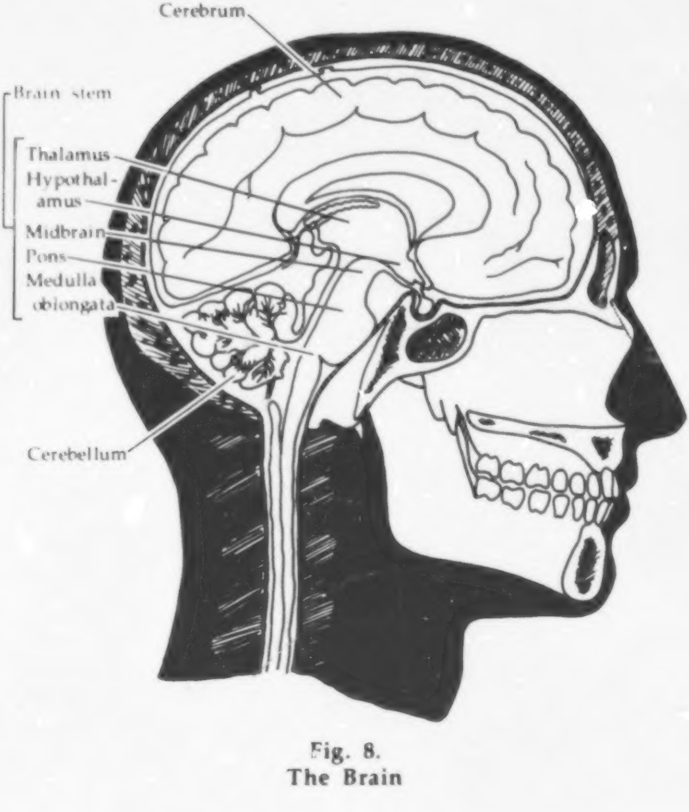
Cerebrum
Brain stem
Thalamus
Hypothalamus
Midbrain
Pons
Medulla oblongata
Cerebellum

Fig. 8.
The Brain

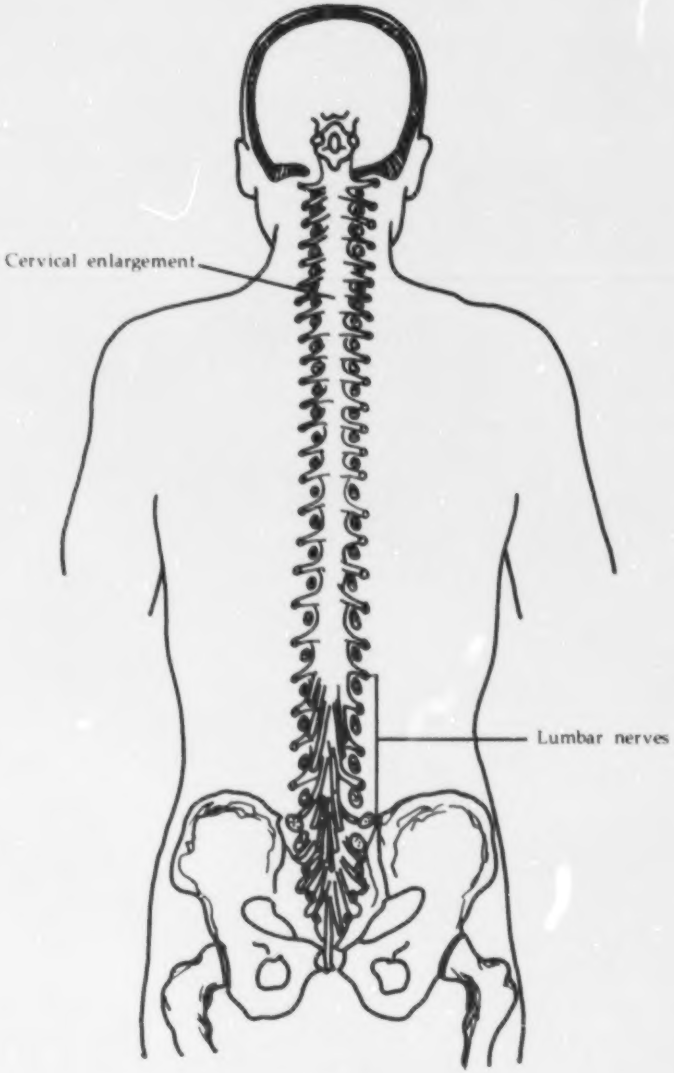
Cervical enlargement
Lumbar nerves

Fig. 9.
The Spinal Cord

The spinal cord consists of gray matter (cell bodies) in the form of an "H" enclosed within the white matter (fibres). A central canal, filled with cerebrospinal fluid, is located in the centre. There are 31 pairs of spinal nerves attached to the spinal cord. Since these are mixed nerves (some fibres carrying impulses to the CNS, some carrying impulses to other regions of the body from the CNS), anything that interferes with the function of a spinal nerve results in both anesthesia and paralysis.

Functions:

1. Important centre of reflex action for the trunk and limbs.
2. Contains the principle conducting paths of impulses to and from the higher centres of the brain.

Membranes (Meninges)

Cover the brain and spinal cord and consist of the: pia mater of the inner membrane that adheres to the brain and spinal cord, arachnoid or middle membrane, dura mater or outer membrane.

Cerebrospinal Fluid (C.S.F.)

Acts as a cushion, filling the ventricles and spinal canal, and the subarachnoid space outside the brain and spinal cord.

Brain

The brain is located in the cranial cavity. It consists of three hollow vesicles in early embryonic life, and later forms the cerebrum, cerebellum, and brain stem (midbrain, pons varolii, medulla oblongata, hypothalamus, thalamus).

There are twelve cranial nerves arising from the brain within the cranial cavity.

Development of the brain is not only a matter of growth but of forming new pathways. The nature of brain protoplasm and the use to which it is put determines the length of time during which development continues. Mental exercise tends to keep the brain active.

Cerebrum

It fills the upper portion of the skull and its surface contains fissures, sulci (grooves), and convolutions (elevations). It consists of frontal, parietal, occipital, and temporal lobes, and the Island of Reil. The ventricles — hollow spaces within the brain containing cerebrospinal fluid — are referred to as the lateral (the first and second) and the third and fourth.

The cerebrum governs all mental activities:

Associative memory
Reason
Intelligence
Will
Seat of consciousness
Interpreter of sensations
Exerts the controlling force on reflex and has motor, sensory, and association areas.

Cerebellum

It is situated beneath the posterior lobe of the cerebrum and is oval in shape with a constricted centre.

The cerebellum helps to maintain equilibrium and voluntary muscle tone.

Brain Stem

Midbrain

The short constricted portion of the brain that connects the pons varolii and cerebellum with the cerebral hemispheres.

Pons Varolii

Situated between the midbrain and medulla oblongata.

Medulla Oblongata

Controls reflex activities such as sneezing, coughing, and vomiting, and vital reflex actions such as control of heart action, blood vessel diameter, and respiration. A blow to the medulla can result in death.

Autonomic Nervous System
(involuntary, visceral)

It is part of the vertibrate nervous system consisting of the craniosacral or parasympathetic nervous system and the thoracolumbar or sympathetic nervous system.

Functions:

1. Innervates all smooth muscle tissue, the heart, and glands.
2. Reflex stimulation

THE EYE

The eye is the special receptor for sight (Fig. 10). The optic nerve transmits the impulses received by the eye to the visual centre in the occipital lobe of the brain. Disturbances in vision can result from abnormalities or damage to the eye, the nerve, or the visual area of the brain.

Eyeball

The eyeball is spherical and is situated in a bony cavity called the orbit.

Outside Layer

Sclera: the white of the eye covering the posterior 5/6 of the eyeball.

Cornea: the transparent front portion of the eyeball that allows light rays to enter the eye.

Middle Layer

Choroid: vascular coat lining the sclera. The ciliary body forms the front part of the choroid. Ciliary muscle controls the shape of the lens.

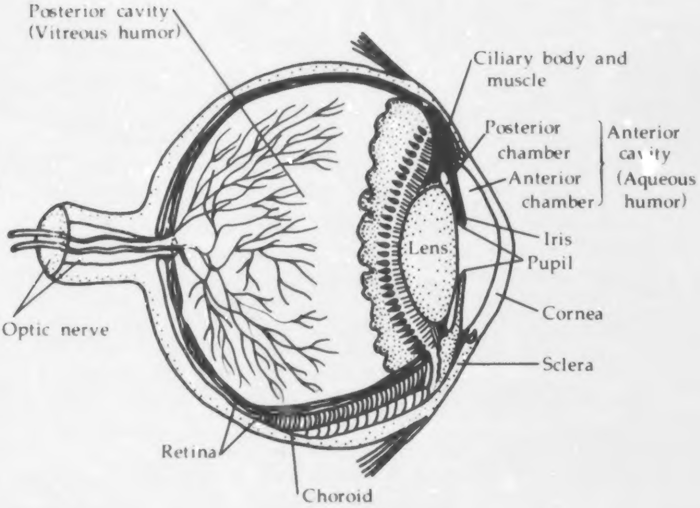
Posterior cavity
(Vitreous humor)
Ciliary body and muscle
Posterior chamber
Anterior chamber
Anterior cavity (Aqueous humor)
Lens
Iris
Pupil
Cornea
Sclera
Optic nerve
Retina
Choroid

Fig. 10.
The Eye

Iris: a circular, colored muscle with a hole or pupil in the centre to control the amount of light entering the eye.

Inner Layer

Retina: a nerve layer lying inside the choroid, containing receptors for vision. Consists of rod cells mainly responsible for black and white vision, and cone cells which give color. Images for sharpest vision should be focussed on the retina at the back of the eye.

Using an ophthalmoscope, doctors may examine the fundus oculi (posterior inner part of the eye). This viewing of the retina and retinal vessels may be of great value in assessing not only conditions of the eye but the presence of other diseases.

Crystalline Lens

A capsule filled with clear crystalline semiliquids located behind the pupil. It changes shape to refract light rays in accommodating to close or distant objects, so that the image will be received on the retina.

Aqueous Humor

The fluid filling the area behind the cornea, in front of the lens. It assists in refractions of light rays.

Vitreous Humor

A jelly-like material filling the posterior cavity of the eye, behind the lens.

It helps to maintain the shape of the eye and refract light rays.

Eye-Related Professions

Optician: grinds lenses according to a prescription and mounts them.

Optometrist: examines eyes for refractive errors, and provides for corrective lenses. Not a physician.

Ophthalmologist, Oculist: a physician specializing in treating all conditions and diseases of the eye.

THE EAR

See Figure 11.

External Ear

The pinna (or auricle) consists of the curled shell on the side of the head and the ear canal (a little tunnel). It ends at the eardrum (tympanic membrane).

The ear canal contains glands which secrete earwax (cerumen), a sticky substance that helps prevent the entrance of foreign material (e.g. a fly).

The eardrum is the membrane that separates the outer ear from the middle ear.

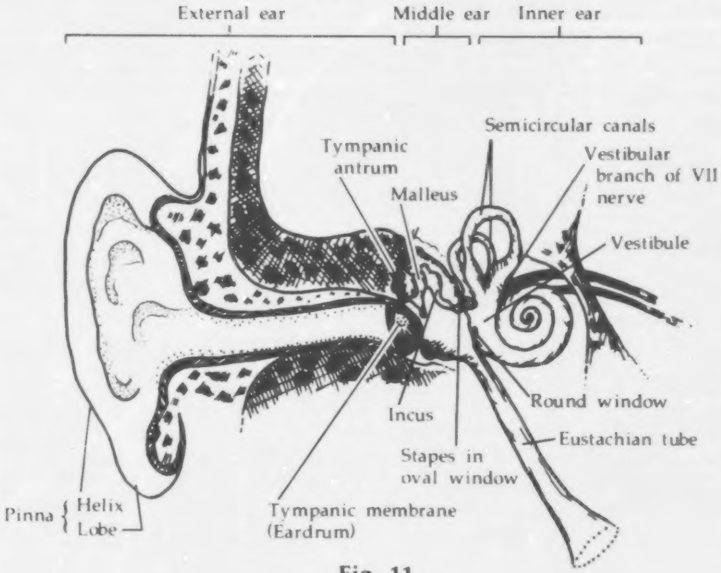
External ear
Middle ear
Inner ear
Semicircular canals
Tympanic antrum
Vestibular branch of VII nerve
Malleus
Vestibule
Round window
Incus
Eustachian tube
Stapes in oval window
Pinna
Helix
Lobe
Tympanic membrane (Eardrum)

Fig. 11.
The Ear

Middle Ear

A small, air-filled cavity that connects with the nasopharynx by way of the eustachian tube.

The eustachian tube serves to equalize the air pressure on either side of the eardrum.

Stretched across the middle ear cavity lies a chain of small bones (ossicles):

the malleus (hammer)
the incus (anvil)
the stapes (stirrup).

The middle ear has two openings that communicate with the inner ear:

the oval window (fenestra ovalis)
the round window (fenestra rotunda).

Inner Ear

The inner ear regulates the sense of balance, i.e. maintains equilibrium and contains the end organs for hearing. It consists of a series of cavities and canals.

Upper respiratory infections spread readily from the nose and the throat to the ear through the eustachian tube. Children are especially vulnerable because of the more nearly horizontal position of the eustachian tube during childhood. However, adults do develop ear infections similar to those that occurred during childhood.

Physiology of Hearing

Sonorous bodies produce air waves that enter the external auditory canal and set the tympanic membrane vibrating. The vibrations are communicated to the ossicle, transmitted through the fenestra vestibuli to the perilymph, stimulate the nerve endings in the organ of Corti, and the impulses are then carried to the centre of hearing in the brain.

Impaired hearing may be congenital, or it may occur at any time as a result of disease, injury, aging, or prolonged exposure to excessive noise.

Normal hearing values are based on levels of intensity and pitch.

Sense of Equilibrium

Equilibrium is the function of the vestibule and semicircular canals of the inner ear. The flowing of the endolymph (a watery fluid) stimulates the sensory hairs of the membranous lining, which transmit the impulses to the vestibular branch of the acoustic nerve and thence to the cerebellum.

INTEGUMENTARY SYSTEM

Membranes

A thin sheet of tissue that acts as a lining in tubes or cavities, or covers structures and separates parts. Of the numerous membranes in the body, four kinds are particularly important: mucous, serous, synovial, and cutaneous (skin).

Mucous Membrane

Found lining tubes and cavities that open to the air and are kept moist by secretions of mucus.

Serous Membrane

Lines the closed cavities of the body and is kept moist by a thin fluid to prevent friction between the moving parts.

Synovial Membrane

Lines the cavities of the joints, the bursae, and tendon sheaths, and has a moist surface to prevent friction.

Cutaneous Membrane

Forms the skin, which covers the external body areas. Its layers are the epidermis, or outer layer of the skin, and the dermis, or inner layer of the skin. Pigments (melanin and carotene), which give color to the skin, are in the deep area of the epidermis.

Appendages of the skin include: nails, hair, sebaceous (oil) glands, and sudoriferous (sweat) glands.

Skin

Epidermis

An outer, thinner layer containing no blood vessels. The thin sheet of cells where most skin growth occurs in the lower part of the epidermis. Each cell in this sheet divides from time to time, forming new cells that crowd slowly upward to the surface.

Dermis

An inner, thicker layer, like a strong elastic envelope that holds everything together and prevents bulging. The dermis contains many blood vessels, nerves, glands, and fat.

Blood Vessels

The blood vessels in the skin help keep body temperature normal. When a body gets too hot, blood vessels in the skin expand so more blood flows to the skin's surface and is cooled. When a body is cold, the skin's blood vessels contract so less blood enters the skin and internal heat is conserved.

Sweat Glands

The skin's sweat glands also regulate temperature. When it is too hot, these glands secrete sweat, which evaporates and cools the body.

Nerve Endings

The skin is studded with nerve endings, some of which respond to warmth, some to cold, some to pressure, and some to pain, itching, or tickling.

Sebum

Human skin maintains its health by means of a fatty substance called sebum, secreted from millions of glands located near the roots of the hairs.

Aging

Aging produces marked changes in the skin. A newborn baby is wrinkled because the skin is too big. As the child's body fills out, the wrinkles vanish. From then on, countless elastic fibres embedded in the skin keep it smooth and tight. At puberty sex hormones stimulate a rapid increase in the sebum production that may clog the pores, causing skin eruptions during adolescence. In old age sebum production drops very low and skin fibres lose much of their elasticity, resulting in loose, wrinkled, dry skin.

Uniqueness

Each person's skin is unique. An example of this uniqueness is fingerprint patterns; everyone's fingerprints are different. Another example is that skin from one part of a body can be successfully transplanted to another part, but it will survive only temporarily if transplanted to someone else's body unless that person is an identical twin.

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MEDICAL TERMINOLOGY

MEDICAL-RELATED WORD ROOTS, PREFIXES, AND SUFFIXES

A knowledge of medical vocabulary is a great asset to MOAs. Most medical words are formed from prefixes, roots, and suffixes used in different combinations. By becoming familiar with the following word parts, it is possible to analyse meanings and thus develop an understanding of medical terminology.

WORD ROOTS

ROOT	MEANING	EXAMPLE
acousti	hearing	acoustics
acou		acoumeter
aud		auditory
audi(o), auditio		audiogram
aus		auscultation
adip(o)	fat	adipose
aden	gland	adenoma
adnexa	accessory	adnexopathy
alb	white	albino
albi		
albu		albumen
amygdal	tonsil	amygdalectomy
ankyl(o)	crooked, bent, growing together	ankylosis
antr(o)	cavity	antrotomy

ROOT	MEANING	EXAMPLE
arter	artery	arteriosclerosis
arteri(o)		
arth	joint	arthritis
arthr(o)		
artic	a joint	articulation
aur	ear	auriscope
auri		
balan	glans penis glans clitoridis	balanitis
blast	germ or bud	blastoma
blephar	eyelid	blepharoptosis
brachi	arm	brachial
bucc(a)	mouth, cheek	buccal cavity
calcu	gravel, stone	calculus
cantho	angle	canthus
card(i)	heart	cardiac
cor		coronary
carp	wrist	carpals
caud(a)	tail	caudate
cephal	head	cephalic
ceph		
cerv	neck	cervical
cervic		
chol(e)	gall, bile	cholangiogram
chond(r)	cartilage, gristle	chondroma
col	colon (large intestine)	colostomy
colp(o)	vagina	colporrhaphy
cor (card)	heart	coronary
cost	rib	costal
cran(i)	skull	craniomalacia
cut	skin	cutaneous
cyst	bladder, sac	cystitis
cyto	cell	cytology
dacry	tear	dacryocyst
dactyl	finger, toe	dactylomegaly

ROOT	MEANING	EXAMPLE
dens	tooth	dentist
dent		
odont		odontodynia
derm	skin	dermis
dermat		dermatologist
dipsa	thirst	dipsomaniac
dur, dura	hard	duraplasty
encephal(o)	brain	encephalitis
enter	intestine	enteritis
epiplo	a fold, omentum	epiplocele
eryth	red	erythema
erythr(o)		erythrocyte
esthe	sensation, feeling	anesthesia
esthesia		
gastr	stomach	gastrectomy
germ	bud	germination
gingiv	gum	gingivitis
gloss, glott	tongue	glossitis
lingua		sublingual
glyco	sugar	glycosuria
gravid	pregnant	gravida
hema, hem	blood	hemangioma
hemat		hematuria
hemo		hemophiliac
hepa	liver	hepatitis
hepat		
hirsut	hair	hirsutism
hyster	uterus	hysterectomy
metr		metrorrhagia
kera	horn, cornea	keratoma
kerat		
lacrim	tear duct	lacrimal
lapar(o)	abdomen	laparotomy
laryng	larynx	laryngoscopy
lien	spleen	lienitis
splen		splenectomy

ROOT	MEANING	EXAMPLE
lingua, gloss	tongue	sublingual
lip	fat	lipoid
lith	stone	lithotomy
mamm	breast	mammary
mast		mastitis
manu	hand	manual
men	month	menstruation
metr, hyster	uterus	metrorrhagia
my(o)	muscle	myasthenia gravis
myc, myco	fungus	mycosis
myel	marrow	myelogenous
myring	drum	myringotomy
myx	mucus	myxedema
nas(o)	nose	nasal
rhin		rhinitis
neph	kidney	nephrectomy
nephr		
ren		renal
nerv	nerve	nervous
neur		neuritis
ocul	eye	oculist
opthalm		ophthalmoscope
oo	eggs	oophoritis
ovi, ovo		oviduct
oophor	ovary	oophorectomy
ovari		ovariectomy
orch	testes	orchitis
orchid(o)		orchidectomy
os	mouth	cervical os
or		oral
oss	bone	osseous
ost		ostitis
oste(o)		osteoma
ot	ear	otitis
oto		otoscope

ROOT	MEANING	EXAMPLE
phag(o) phage(o)	eat	dysphagia
pharyng	throat	pharyngitis
phleb ven	vein	phlebotomy venous
phob phobos	fear	photophobia
phon	voice	phonetic
pnea	breath	dyspenea
pneumon pulmon	lung	pneumonia pulmonary
pod	foot	podiatry
proct	rectum	proctoscopy
psych	soul, mind	psychiatry
pyel	pelvis	pyelitis
pyo	pus	pyogenic
ren nephr	kidney	renal
rhin(o)	nose	rhinitis
salping	tube (usually refers to fallopian tube)	salpingitis
sarc	flesh	sarcoma
splen lien	spleen	splenectomy lienal
spondyl(o)	vertebrae	spondylitis
sphygmo	pulse	sphygmomanometer
stoma(t)	mouth	stomatitis
therap	treatment	therapeutic
thorac	chest	thoracic
trache trachel	neck	trachelorrhaphy
trich	hair	trichomoniasis
troph	nourishment	atrophy
tympan	ear drum	tympanic membrane

ROOT	MEANING	EXAMPLE
ur, urea	urine	uremia
vena, phleb	vein	venous
vesic	bladder	vesicovaginal

PREFIXES

PREFIX	MEANING	EXAMPLE
a	without, lack of	asepsis
an		anemia
ab	away from	abduction
acro	extremity	acromegaly
ad	toward, at, to	adduction
alge	pain	algesia
ambi, amb	both, both sides	ambidextrous
ana	back, up, again	anabolism
aniso	unequal, dissimilar	anisocytosis
andr(o)	man, masculine	androgen
angi(o)	vessel	angiogram
ante	before	antenatal
anter(o)	before, in front of	anterolateral
anti	opposed to, against	antiseptic
apo	separation, away from	aponeurosis
astr	star shaped	astrocyte
atel	imperfect, incomplete	atelectasis
auto	self	autovaccine
bi	twice, double, two	bilateral
bin		binocular
bis		bisiliac
bio	life	biopsy
brady	slow	bradycardia

PREFIX	MEANING	EXAMPLE
cata	down, under	catabolism
chrom	color	chromogenic
circum	around, about	circumduction
co	with, together	coenzyme
com		complication
con		congenital
contra	against, opposite	contraceptive
counter	against	counterirritant
copr	feces, anything nasty	copremia
kopr		
crypto	hidden	cryptorchidism
de	down, away from	dehydrate
deca	ten	decalitre
dextr(o)	right	dextrocardiogram
di	two, twice, double	dimetria
dia	through	diaphragm
dys	painful, difficult	dyspnea
e	without, out	eliminate
ec	out	ectropion
ecto	without, outside, external	ectopic
em	in	empyema
en		encephalitis
endo	within	endocardium
epi	upon, above	epidermis
eso	toward, inward	esotropia
eu	well	euphoria
ex	out, over	exophthalmia
extra	outside of, beyond, in addition	extravascular
fore	in front of	forearm
galact	milk	galactorrhea
glyco	sugar	glycosuria
gyn	women	gynephobia
gynec		gynecology

PREFIX	MEANING	EXAMPLE
hemi	half	hemiplegia
hetero	unlike, dissimilar	heterosexual
histo	tissue	histology
homeo	same	homeostasis
homo	similar	homogenous
hydro	water, fluid	hydrocephalus
hyper	above, over, excessive	hypertrophy
hypo	beneath, below, deficient	hypodermic hyposecretion
hypno	sleep	hypnotic
im	in, not	(in) implant (not) immature
in		(in) incarcerated (not) incoherent
infra	below	inframammary
inter	between	interstitial
intra	into, within	intravenous
iso	equal	isotonic
juxta	near, by, side by side	juxtaposition
lact(o)	milk	lactation
leuc(o)	white	leucocyte
leuk(o)		leukocyte
macro	large	macrocyte
mal	poor, inadequate	malnutrition
megalo	great, large	megalomaniac
mega		megacolon
melan	black	melanoma
meta	beyond, after, across change	metatarsal
micro	small	micro-organisms
multi	much, many	multiparous
neo	new, recent	neoplasm
necr(o)	death	necrosis
non	not	nonpathogenic

PREFIX	MEANING	EXAMPLE
ob	against	obstruction
	before	oblongata
olig	deficiency	oliguria
ortho	straight, normal	orthodontist
pachy	thick	pachyderma
pan	all	panarthritis
par	beside, around, near	parametrium
para		
path	disease	pathologica
		pathological
peri	around	pericardium
photo	light	phototherapy
pluri	more	plurigravida
poly	many, much	polyuria
post	after, behind	postnatal
pre	before,	prenatal
	in front of	precordial
pro	before, forward	prognosis
pseudo	false	pseudopregnancy
re	back	reaction
	again	reproduction
retro	backward	retroversion
	behind	retroperitoneal
schirr(o)	hard	schirroma
scler(o)	hard	sclerosis
semi	half	semilunar
septic	poison	septicemia
steno	narrow, constricted	stenosis
stereo	solid	stereotype
sub	under	subcutaneous
super	above, beyond	suprarenal
supra		
sym	with, together	symphysis
syn		syndactylism

PREFIX	MEANING	EXAMPLE
tachy	fast	tachycardia
tact	touch	tactile
tox	poison	toxemia
trans	across, through	transplant
ultra	excess, beyond	ultrasonic
uni	one	unilateral
vas	vessel	vascular

SUFFIXES

SUFFIX	MEANING	EXAMPLE
—ac	pertaining to	iliac
—al		digital
—an		ovarian
—ory		circulatory
—acy	state, quality	fallacy
—id		vivid
—ia		gastraneuria
—ity		density
—y		syndactyly
—asis	condition, state	metastasis
—iasis	affected with	nephrolithiasis
—sis		hemostasis
—sia		
—osis		carcinomatosis
—(a)emia	blood	hyperemia
—algesia	suffering pain	analgesia
—algia		arthralgia
—asthenia	weakness	myasthenia
—(a)esthesia	sensation	anesthesia
—atresia	closed, imperforate	proctatresia

SUFFIX	MEANING	EXAMPLE
—blast	pertaining to a germ	myeloblast
—cele	hernia, tumor, protrusion	cystocele
—centesis	puncture	paracentesis
—cide	causing death	suicide
—culum	express diminution	tuberculum
—olus		bronchiolus
—cyst	sac or bladder containing fluid	cholecyst
—cyte	cell	leucocyte
—dynia	pain	acrodynia
—ectasia	dilatation,	bronchiectasis
—ectasis	expansion	
—ectomy	excision of	appendectomy
—gene	production, origin	
—genesis		spermatogenesis
—genic		osteogenic
—genetic		ontogenetic
—graph	writing, record	cardiography
—graphy		
—itis	inflammation	tonsillitis
—kinesis	motion	hyperkinesia
—kinetic		
—lith	stone	nephrolith
—lysis	loosening, destruction	hemolysis
—malacia	softening	osteomalacia
—mania	madness, insane desire	kelptomania
—megaly	large, extreme	nephromegaly

SUFFIX	MEANING	EXAMPLE
—oid	like, resembling	mucoid
—(o)logy	science of, study of	pathology
—oma	tumor	adenoma
—opia	eye	myopia
—(o)rrhea	flow, discharge	leucorrhea
—(o)scopy	inspection, looking into	cystoscopy
—(o)stomy	creating an opening	gastrostomy
—(o)tomy	cutting, incision into	nephrotomy
—pathy	disease	encephalopathy
—penia	deficiency	leucopenia
—pexy	fixation of	nephropexy
—phagia	eating	aphagia
—phasia	speech	aphasia
—plasm	mould, form	neoplasm
—plastic	moulded, formed	neoplastic
—plasty	to mould or repair	hernioplasty
—plegia	paralysis	paraplegia
—pnea	breath	dyspnea
—ptosis	falling	nephroptosis
—(o)rrhaphy	sewing of	colporrhaphy
—sclerosis	hardening, dryness	arteriosclerosis
—trophy	relating to nutrition	hypertrophy
—ultation	an act of	consultation
—ure	state of being	mature
—uria	urine	glycosuria

APPENDIX

MEDICAL OFFICE ASSISTANT SKILL PROFILE CHART

A. MAINTAIN A FILING SYSTEM

1. Set up a filing system.
2. Maintain a filing system, applying necessary principles.
3. Cull or strip files.
4. Cross reference files.

B. PERFORM TYPING TASKS

1. Type tabular material.
2. Proofread.
3. Type memoranda and other business messages.
4. Type business letters and envelopes.
5. Fill in various forms.
6. Type committee minutes.
7. Operate various types of transcribing equipment.
8. Transcribe business letters, memoranda, and manuscripts.
9. Apply principles of good transcription.
10. Transcribe reports.
11. Type personal histories or resumes.
12. Record minutes.

13. Type carbon copies.
14. Correct errors.

C. PERFORM OFFICE RECORDKEEPING

1. Maintain cash records.
2. Maintain a petty cash book, post, and take off a trial balance.
3. Prepare cheques and bank reconciliations.
4. Maintain office supplies.
5. Prepare purchase forms.
6. Prepare sales forms (invoices and statements).
7. Record salaried payroll, journalize, post, and take off a trial balance.
8. Maintain a daily journal.
9. Maintain a general ledger.
10. Maintain a synoptic journal.
11. Maintain a one-rite system.
12. Keep staff time sheets.

D. PERFORM RECEPTIONIST DUTIES

1. Create a good office image by voice, grooming, and general manner.
2. Recognize and apply standards of office decorum.
3. Use voice, physical gestures, and eyes for effective personal contact.
4. Apply effective listening skills and behaviors.
5. Use proper techniques when making telephone calls.
6. Receive, assist, and direct people on the telephone.
7. Receive, assist, and direct people in person.
8. Use the dictionary and thesaurus for reference.

9. Screen additional or replacement staff.
10. Compose business correspondence.
11. Organize work priorities daily.
12. Develop an office procedure manual.
13. Perform office housekeeping duties.
14. Operate business machines.
15. Handle mail.
16. Organize work and reception areas.
17. Manage patients with special needs.
18. Process emergency and special phone calls.
19. Use special medical office telephone techniques.
20. Recognize on-site emergencies.
21. Apply first-aid procedures as required.
22. Recognize patients' feelings and demonstrate concern.
23. Transmit information from a patient to the physician.
24. Maintain effective working relationships with co-workers and physicians.
25. Comfort and manage children.
26. Code data for computer input and diagnostic screening.

E. MAINTAIN APPOINTMENT SCHEDULES

1. Identify appointment systems.
2. Identify time block systems.
3. Make initial appointments being aware of medical plan coverage.
4. Implement time block required.
5. Write appointment cards.
6. Maintain a recall system.
7. Confirm appointments.
8. Arrange consultations.

9. Book hospital beds and surgical procedures.
10. Refer or arrange appointments with community agencies (CARS, WCB, cancer agencies, etc.).
11. Protect privacy of patient appointments (from employers, family, and neighbors).
12. Maintain a cancellation list.
13. Implement a "no-show" policy.
14. Manage non-scheduled appointments.
15. Manage non-medical appointments.
16. Reschedule patients if the doctor is unavailable.
17. Remind the doctor of personal commitments.

F. MAINTAIN PATIENT RECORDS

1. Maintain confidentiality of records.
2. Apply "release of information" procedures under direction of the physician.
3. Organize the content of patient files.
4. Identify and use special filing indicators (allergies, diabetes, etc.).
5. Distinguish between individual and family history charts and groups.
6. Register new patients. Explain medical plan coverage.
7. Check for changes in personal data.
8. Pull and prepare patients' charts for their visits.
9. Maintain active and non-active patient records legally required.
10. Ensure that chart entries are completed daily.
11. Take basic medical histories.

G. PROCESS PATIENT ACCOUNTS

1. Interpret the Preamble to *Relative Value Guide to Fees.*
2. Interpret services covered by medical plans.
3. Confirm patient referral data for billing purposes.
4. Complete billing cards and file carbon copies.
5. Verify coverage, name, number, and dependants of medical plan.
6. Submit cards daily to payment plans.
7. Handle remittances from MSP, etc.
8. Process billing rejects from insurance plans.
9. Complete and verify WCB, DVA, ICBC, CEIC, MSD-12, Indian Affairs, and loss of work forms.
10. Collect payments, and patient's portion or the full amount.
11. Identify and collect delinquent accounts.
12. Retain a copy of bills to government and medical plans.
13. Discuss financial arrangements with patients.

H. USE MEDICAL TERMINOLOGY

1. Identify medical terms.
2. Identify medical word components.
3. Use appropriate reference sources.
4. Identify standard medical abbreviations and symbols.
5. Identify medical specialities and their functions.
6. Compose or transcribe medical letters.

I. PERFORM CLINICAL DUTIES

1. Take and record vital signs, including weight and height.
2. Prepare instruments and supplies for sterilization.
3. Sterlize instruments and supplies.
4. Prepare treatment rooms for patients.
5. Apply antiseptic techniques.
6. Apply medical-surgical aseptic techniques. (How? Why? What?)
7. Replenish and store inventory of supplies.
8 Prepare patients psychologically for procedures.
9. Prepare and send requisitions for diagnostic procedures (X-ray, Lab, ECG, EEG).
10. Apply principles of drug administration.
11. Order drugs and solutions for the office.
12. Store and maintain drugs and solutions.
13. Manage an inventory for narcotic and controlled drugs.
14. Read and convert metric measuring systems (height, weight, and volume).
15. Collect and prepare specimens for analysis.
16. Perform routine urinalysis.
17. Identify examining and surgical instruments.
18. Identify, set up, and maintain medical equipment.
19. Prepare trays for medical-surgical procedures.
20. Perform routine hemoglobin tests.
21. Assist the doctor with specific exams and procedures.
22. Position and drape patients for specific procedures.
23. Confirm that patients have received pre-op and post-op instructions.
24. Provide patient education.
25. Explain laboratory time procedures.
26. Refer questions to appropriate resource if needed.

J. MAINTAIN PROFESSIONAL ATTITUDE

1. Recognize limitations — personal, educational, legal, and moral.
2. Recognize responsibilities and limitations in employer-employee relations.
3. Respect the Human Rights Code.
4. Control excessive emotional reactions.
5. Maintain personal health.
6. Enforce legal code of confidentiality.

K. APPLY PRINCIPLES OF ANATOMY AND PHYSIOLOGY

1. Explain relationships of the body systems and functions.
2. Identify each body system and explain its function.
3. Identify anatomical parts of each body system.
4. Explain function of each anatomical part.
5. Explain the healing process and inflammatory response.
6. Explain principles of cross-infection and communicable diseases.
7. Explain principles of basic pharmacology.

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